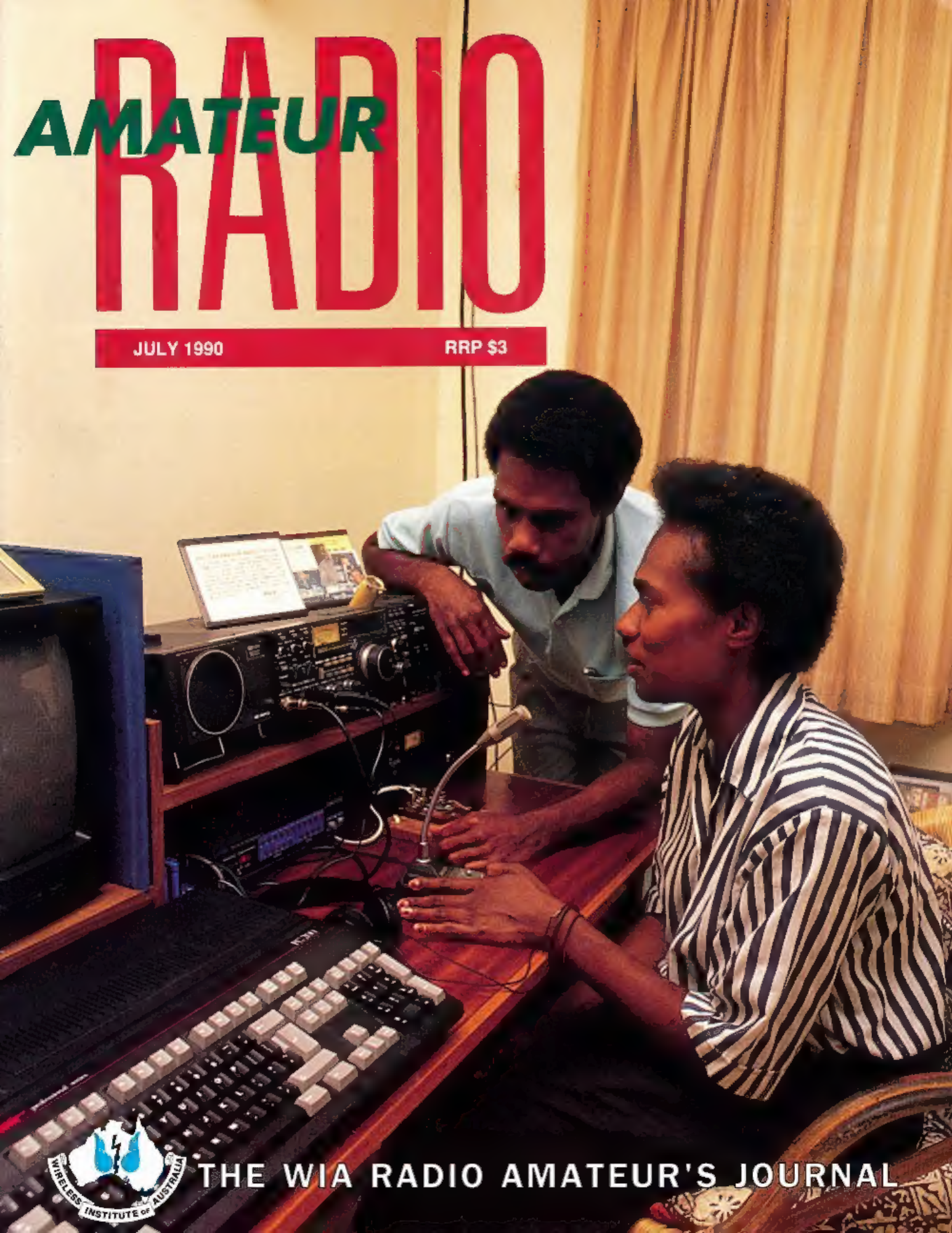
AMATEUR RADIO

JULY 1990 RRP $3



THE WIA RADIO AMATEUR'S JOURNAL

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AMATEUR RADIO

THE WIA RADIO AMATEUR'S JOURNAL

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CONTENTS

Cover

Vanuatu celebrates its 10th anniversary of independence this month with the Vanuatu Amateur Radio Society setting up a commemorative station YJ10IND. It will be looking for contacts with VK. The WIA broadcasts on Sunday will be supplied further details. The first Ni Vanuatu YL operator Touasi Taiwia YJ8NTT is pictured on this month's cover at a rig with Tim Williams, also interested in the hobby, looking on. Picture taken by photographer Philippe Metois of Vanuatu. For full story, see article by Jim Linton VK3PC on page 21.

EDITOR'S COMMENT

BILL RICE VK3ABP EXECUTIVE EDITOR

Disconnected Jottings

There have been several items this month, either presented to me or forcing themselves to my notice. Most are quite unrelated each to the other, but all deserve some comment; so, here goes!

Space Restrictions

Last month we gave notice that from now on letters to "Over to You" exceeding 200 words in length will not be published. This is due to pressure on space since we have reduced our total pages as a result of decreasing advertising income, in its turn due to the state of the national economy. A similar restriction also applies to obituaries. In either case, items significantly over the limit will be returned to their writers for condensation, and some have already been sent back. There are some though, in the order of 250 words, which have been accepted until you, the writers, become familiar with the limit. Pruning these to size has been a job for guess who? Yes, me! Believe me, it's not easy and it takes time. There is an old proverb, that a literary genius can say in 200 words what any fool can say in 1000! We can't all become geniuses overnight, but please take pity on Hon Exec Ed and prune out those surplus words. Please?

Old Timers

I had a phone call recently from Jim McDonnell, VK2DJM, of Ballina. Jim is 80 years old (he sounded much younger over the phone) and has held the previous calls of VK3ZN and VK4ZN. He lives in a retirement village, and is crusading for the older, somewhat incapacitated amateurs who would love to get back on the air but are unable any longer to put up antennas. As a group, radio amateurs are slowly becoming older (like the general population, but faster) so this situation is becoming more common as time goes on. Jim would like to see radio clubs in particular taking a more active interest in running working bees to help out their older members, or potential members, in these situations. How about it, folks?

Federal Tapes

As was announced last month, for reasons which would take too long to explain here, the production of weekly Federal News tapes for Divisional broadcasts has stopped for good after 15 years. That announcement was made in WIA News, which was only partly written by Bill Roper last month. But, since its inception, that column has been Bill's baby, and it was thought inappropriate to include thanks to Bill (and Ron Fisher) in the column. As Executive Editor, I am not so restricted, and I would like to acknowledge here and now the tremendous effort made by Bill and Ron over all those years. It is a great pity that the service "ground to a halt" so suddenly, but I know for sure that 3ARZ and 3OM are glad to have the extra spare time. Many, many thanks to them both for their thousands of hours of unpaid dedication.

Lake Eyre Safari

A couple of months have gone by since my last mention of Lake Eyre, or indeed of sailing. A correspondent has meanwhile suggested that probably no-one is interested anyway! Obviously he's not, but judging by other letters, some are. The big news since then has been the record floods in outback Queensland in April. By mid-May the Cooper Creek flow at Innamincka was about 12 million cubic metres per hour, but at the time of writing was not expected to to reach Lake Eyre until late July. It seems that it will not be as big a filling as in 1974, but there is no doubt that there will be sufficient depth for sailing until late next year. I am hoping to take our trailer-sailer to the Lake as soon as the depth is adequate, possibly in September, and to make it a bigger, brighter and better DXpedition than we achieved back in 1975, '76 and '77. I wonder how many of you might be interested in that, perhaps even joining us on the Lake for a few days? I await response from at least a few of you!

WIA NEWS

EXECUTIVE

Repeater Linking Policies

Recently there has been quite a bit of misinformation circulating on-air about one of the policies relating to repeater linking. In order to dispel this misunderstanding, Peter Gamble VK3YRP, the WIA Federal President, and ex-Chairman of FeTAC, explains the history and status of the repeater policies in question....

In 1985, the WIA Federal Technical Advisory Committee (FeTAC) prepared a paper on repeaters, which covered many topics, including repeater linking. The paper was initially prepared as a response to a paper on repeaters by the then Department of Communications (DoC), now the Department of Transport and Communications (DoTC), which was proposing some quite harsh repeater licensing requirements. These included a proposal to licence a repeater only when the traffic justified it!

The FeTAC paper was prepared with inputs from the Divisions and drafts were circulated for comment. Some of the proposals were also discussed with DoC officials to gain some insight into their approach to the subject. The paper was then presented and discussed in detail at the 1986 Federal Convention and, with modifications, was accepted as WIA policy.

Following the 1986 Convention, the paper was forwarded to DoC. The DoC response gave approval for repeater linking and also 28 MHz FM repeaters. It contained a set of conditions and policies on various repeater matters, some of which have since been included in the latest regulatory booklet (DOC 71).

Since that time, several repeaters have been successfully linked in various configurations. However, concern has been expressed recently at some of the DoC policies and conditions that apply. One policy in particular that is causing some concern at the moment is that:

"The DoC will authorise the cross-linking of up to three repeater stations. Cross-linking of any number of repeaters for the purposes of WICEN or approved WIA broadcasts will, however, be considered."

This policy was first stated in a letter to the WIA signed by David Hunt the then Manager, Regulatory Operations Branch, Canberra, and dated 30/9/86.

At this point it is interesting to go back to the original WIA repeater paper. DoC had expressed concern that an unlimited network of linked repeaters operating in a mode where all transmitters simultaneously carried the same transmission was unduly and unnecessarily tying up the radio spectrum to the detri-

WIA DIVISIONS

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers			Weekly News Broadcasts	1990 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601	President Secretary Treasurer	Ted Pearce Jan Burrell Ken Ray	VK1AOP VK1BR VK1KEN	3.570 MHz 2m ch 6950 70cm ch 8525 2000 hrs Sun	(F) $65.00 (G) (S) $52.00 (X) $39.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta) 2124 Phone (02) 689 2417 Fax (02) 633 1525	President Secretary Treasurer (Office hours	Roger Henley Tim Mills David Horsfall Mon-Fri 1100 - 1400 Wed 1900 - 2100)	VK2ZIG VK2ZTM VK2KFU	(R Denotes repeater) Times 1045 and 1915 on Sunday 1.845 MHz AM, 3.595 AM(1045) SSB (1915 only), 7.146 AM (1045 only) 10.125 SSB (1045 only), 28.320 SSB, 52 120 SSB 52.525 FM 144.12 (SSB), 147.000 FM(R) 438.525 FM(R) 584.750 (ATV Sound) 1281.75FM (R) Relays also conducted via many repeaters throughout NSW.	(F) $69.00 (G) (S) $47.00 (X) $33.00
VK3	Victorian Division 38 Taylor St Ashburton Vic 3147 Phone (03) 885 9261	President Secretary Treasurer Office hours 0900-1600 Tue & Thur	Jim Linton Barry Wilton Rob Hailey	VK3PC VK3XV VK3XLZ	1.840 MHz AM, 3.615 SSB, 7.085 SSB, 147.250 FM(R) Mt Macedon, 147.225 FM(R) Mt Baw Baw 146.800 FM(R) Mildura, 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday	(F) $65.00 (G) (S) $52.00 (X) $39.00
VK4	Queensland Division GPO Box 638 Brisbane Qld 4001 Phone (07) 284 9075	President Secretary Treasurer	Ross Mutzelburg Eddie Fisher Eric Fittock	VK4IY VK4ABX VK4NEF	1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 28.400, MHz 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday Repeated on 3.605 & 147.150 MHz, 1930 Tuesday	(F) $65.00 (G) (S) $52.00 (X) $39.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Secretary Treasurer	Rowland Bruce John McKellar Bill Wardrop	VK5OU VK5BJM VK5AWM	1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 145.000, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.00 Adelaide, ATV 444.250 Mid North (NT)3.555, 146.500, 0900 hrs Sunday	(F) $65.00 (G) (S) $52.00 (X) $39.00
VK6	West Australian Division PO Box 10 West Perth WA 6005 Phone (09) 388 4388	President Secretary Treasurer	Alyn Maschette John Farnan Bruce Hedland - Thomas	VK6KWN VK6AFA VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115,14.175, 21.185, 28.345, 50.150, 438.525 MHz Country relays 3582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury)147.225(R) 147.250 (R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker Broadcast repeated on 3.560 at 1930 hrs.	(F) $56.00 (G) (S) $45.00 (X) $30.00
VK7	Tasmanian Division 148 Derwent Ave Lindisfarne TAS 7015	President Secretary Treasurer	Tom Allen Ted Beard Peter King	VK7AL VK7EB VK7ZPK	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.100 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) $63.00 (G) (S) $50.00 (X) $38.00
VK8	(Northern Territory) is part of the VK5 Division and relays broadcasts from VK5 as shown (received on 14 or 28 MHz).					

Note: All times are local. All frequencies MHz.

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ment of other amateurs. The WIA generally supported this view and, after consultation with DoC, the following guideline was formulated:

"The maximum number of repeaters to be cross-linked where simultaneous emission is used will usually be a maximum of three. Where the received transmission is stored before retransmission, for example in RTTY or packet mode operations, or where repeaters may be selectively added to the link, then this limit does not apply. This restriction does not apply to the cross-linking of repeaters for a temporary specific purpose (eg a WIA Broadcast or for WICEN activities).

Reference: Repeater Paper, Section 4.3 (f), General Guidelines for Repeater Cross-Linking."

This guideline makes an interesting number of distinctions between "hard linked" repeaters and "selectively linked" repeaters. First, all repeaters where the message is stored before retransmission, such as packet or RTTY repeaters are considered to be "selectively linked" and hence the "maximum number of three" rule does not apply to these repeaters. Indeed, the emergence of the packet networking systems follows this idea and these repeaters are not considered to be "linked" but rather "networked".

Second, special exemptions should apply for WIA Broadcasts or WICEN activities. These are clearly different circumstances from the typical amateur transmission and are specifically referred to in the DoC policy statement.

Third, the idea of "selectively adding" repeaters to the link for real time transmission foreshadows the idea of "trunking" or "networking" a group of voice repeaters. At the time the paper was written, it was envisaged that some form of tone access would be used to select a desired output repeater. This type of system was then being tested experimentally in New Zealand, where a "back bone" link was being set up between Auckland and Wellington.

It was considered that the flexibility should be there for Australian amateurs to follow similar paths. A typical scenario envisaged a trunk link between two major cities, with perhaps several spurs to large towns along the way. Amateurs would be able to access the "network" at various points and easily select the desired output repeater by using some form of tone signalling, such as DTMF.

In discussions with the Department of Communications in 1986, these ideas were floated and no opposition was shown to the idea. The DoC suggested that it would consider each proposal on its merits.

Later discussion with DoTC, continuing up to the preparation of these comments, has confirmed that it is prepared to consider each proposal on its merits.

Thus the WIA believes that there is sufficient flexibility within the current DoTC policy to accommodate all possible arrangements for repeater networks, whatever the mode.

Crimes Act Amendment

The WIA has just become aware of an amendment to the Crimes Act 1914 that is the cause of some concern. George Brzostowski, VK1GB, advises that the terms of the new section 85ZKB of the Crimes Act 1914 of the Commonwealth, now makes it an offence for a person to manufacture, advertise, display or offer for sale, sell or possess an apparatus of device (whether in an assembled or unassembled form) that the person knows is an apparatus or device of a kind that is capable of being used to enable a person to intercept a communication in contravention of section 7(1) of the Telecommunications (Interception) Act 1979.

The critical elements are that the defendant be proved to have known that the device was capable of being used by any person, whether the defendant or anybody else, for the purpose of interception.

That is not the end of the matter as far as radio amateurs are concerned. The Act invokes a person's skills and training as an aid in inferring that the person should have known the device's capabilities. That knowledge plus the act of possession, sale, etc, is sufficient to constitute the offence.

For instance, the terms of subsection 85ZKB(3) provide that for the purposes of establishing a contravention of subsection (1), if having regard to a person's abilities, experience, qualifications and other attributes, and all the circumstances surrounding the alleged contravention of subsection (1) the person ought reasonably to have known that an apparatus was of a kind referred to in subsection (1), the person shall be taken to have known that the apparatus was an apparatus to which subsection (1) applied.

The WIA is seeking clarification of how these provisions are likely to be policed, and whether there is a possibility of some amendments being introduced. There will be difficulties, as public policy to protect telecommunications, which now include the use of mobile telephones, is a matter of great importance to the Government.

After receiving advice and ascertaining how the Government sees the practical application of this law, the WIA will offer advice to members and radio amateurs generally.

People wishing to have an input into the WIA's efforts are invited to contact George Brzostowski VK1GB on (06) 247 3296.

Packet Networking Protocols

Since the inception of packet radio techniques into the Amateur Service there has been a rapid expansion in the use of this new mode world wide. Many would argue that packet is at present the most exciting aspect of our hobby.

However, the rapidly increasing interest in packet radio has caused problems with congestion on large packet networks. This problem has led to the development of several high level "networking" protocols to improve the efficiency and flow of information between packet repeaters used in a network environment. These protocols, used only at the repeater stations, are transparent to the end user and therefore require no change to the user's existing node equipment.

As a consequence, Australian amateur packeteers have looked towards using the various networking protocols available from overseas, such as NETROM, ROSE, TEXNET, etc..

And this is where a problem arises!

Back in November 1988, DoTC raised the matter with the WIA in the form of a discussion paper that included the following comments:

"Under existing Australian licence conditions each packet header is required to contain the call sign of the destination station, the originating station and, where different, the station transmitting. Both the AX25 and V3 protocols have no difficulty in meeting this minimal requirement.

While both of these packet protocols allow the interconnection of repeater stations under a digi-peater scheme, in practice they have proved inefficient where traffic levels are high. This aspect is understood to be causing packet repeater networks to be effectively limited to a maximum of about three stations.

In essence the constraint is due to each individual packet being transferred from repeater to repeater with acknowledgement from the last station in the chain. Any failure occuring between the intervening stations is not identified until the last link. As a consequence considerable delays can occur. This situation is exacerbated under heavy traffic conditions.

The virtual circuit networking protocols, on the other hand, acknowledge at each transfer of the packet, and have been streamlined so that only one "connection" is made between repeater stations. All individual user's packets destined for a repeater are handled together within this framework.

Packet transmissions occurring between stations in the network are only identified with the call sign of the transmitting and receiving repeater. However, because the protocols are transparent to the user, the up/down link packets to a repeater follow the AX25 or V3 identification format.

Except for some systems, such as NETROM, the networking protocols all meet Australian identification requirements on the up/down links. However, all **FAIL** to conform on transmissions occuring between repeaters. The networking protocols therefore cannot be authorised under DoTC's existing packet licensing condition."

The WIA discussed this problem at length with several people active in packet radio and, as a result, sought from DoTC the facility to transmit inter repeater packets on the user frequency. However, after much discussion at the November 1988 Joint WIA/DoTC meeting in Canberra, DoTC and the WIA eventually agreed to alteration of the existing repeater linking conditions to allow packet, and to relax identification requirements, **but only where a separate interlink frequency is used!**

This ruling was publicised in WIA news broadcasts via the Federal Tapes, but was inadvertently not published in the pages of Amateur Radio magazine. Also, DoTC made a decision at that time not to delay the publication of the long awaited DOC 71 booklet any further and, therefore, the current version of DOC 71 was issued without these packet repeater linking amendments being included.

All these events have combined to bring about confusion and misunderstanding with a small group of packet users.

In order to clarify the situation, a letter was sent to the WIA by DoTC on 13th June 1990, over the signature of the Manager Regulatory, Alan Jordan.

This letter is as follows:

"It has recently come to my attention that some confusion has arisen in the Amateur community concerning the use of "Rose" and other packet networking protocols. I would therefore like to take this opportunity to clarify the actual situation.

As you will recall, when the "packet" mode of transmission was introduced into Australia the Department placed only minimal conditions on its use. The primary requirement being that each "packet" must contain the call sign of the destination station, the originating station and, where different, the station transmitting.

Both the commonly used AX25 and V3 packet protocols fully comply with these conditions, either when used for direct communication between Amateur/Repeater Stations or for "digi-peater" operation.

On the other hand, all networking protocols have difficulty conforming with the identification requirements. Except for "Netrom", the majority meet the conditions in respect to communications to/from Amateur and Repeater Stations, but all fail to comply during intercommunications which take place between Repeater Stations.

Accordingly, "Rose, "Netrom" and like networking protocols are not authorised for use in the general packet environment. Notwithstanding this constraint, in recognition of the need to improve the efficient transfer of information in networks, the Department does permit the use of these protocols where separate repeater inter-link channels are employed.

In the special case where a

network protocol is used on a dedicated repeater inter-link channel, each transmission between stations is only required to contain the call sign of the originating and destination Repeater Station. However, I would stress that all transmissions flowing to/from Repeaters in such a network and Amateur Stations must conform to the existing identification conditions."

This statement from DoTC is clear. Under the present rules governing the amateur service in Australia, networking protocols such as ROSE are constrained to interlinking situations only.

One can envisage a communication's trunk on its separate frequency with users gaining access to nodes on that trunk using different frequencies. Good communications practice would suggest the trunk on which the networking protocol operates is optimised for throughput and could well be on UHF or microwave and operated at high data rates, for example 9600 baud, or even higher. However, bearing in mind the experimental nature of amateur radio, please note that the WIA believes it is quite permissible to use interlinking frequencies in any amateur band in agreement with licensing conditions.

The WIA has long been aware that the DoTC requirements are more stringent than those applying elsewhere on the worldwide amateur scene. We have always maintained a pro-deregulation attitude in negotiation that is further witnessed by our stand in IARU circles against adopting AX25 as **THE** amateur packet protocol.

The WIA continues its representational and negotiating roles with DoTC and continues to press for changes to the existing conditions. However, we must know the requirements of **all** Australian packet users so that the WIA approaches to DoTC on behalf of Australian packet users support the use of the widest possible range of protocols.

Approaches to DoTC locally, or at central office level in Canberra, by individuals, or representatives from local interest groups, are invariably referred to the WIA at Joint WIA/DoTC Meetings for their view.

So please make your views known to us. Address your comments to your Divisional Technical Advisory Committee, or direct to the Chairman of FeTAC, at the Executive office address, PO Box 300, Caulfield South, 3162.

1296 MHz Info Needed

Are you active on microwaves, that is 1296 MHz and above?

The WIA's WARC 92 Australian Preparatory Group representatives are urgently in need of information on the use of these bands in Australia.

Already the Chairman of FeTAC, John Martin VK3ZJC, has compiled a list of known operators. A little while ago a couple of the Divisions ran a similar plea to their members on their weekly news broadcasts.

If you are active on the microwaves, please advise details to the Chairman of FeTAC at the Executive office address, PO Box 300, Caulfield South, 3162.

John will collate the data for the WARC 92 team, and also publish a precis in Amateur Radio magazine in due course.

Australia Amateur Call Book

Is the information relating to your personal particulars correct in the WIA 80th Anniversary issue of the Australian Radio Amateur Call Book?

Now is a good time to correct your name, address and callsign details for publication in the next Australian Amateur Radio Callbook.

The 1991 Australian Amateur Radio Callbook is scheduled to be published towards the end of this year, but work on it has already commenced.

The information in any Callbook published by the WIA is only as good, and as up-to-date as the information received from DoTC, and from WIA members. WIA members keep us informed of their changes of address (otherwise Amateur Radio magazine does not arrive!), so their details published in the Call Book are taken from the WIA records and not DoTC records. However, bear in mind that these WIA records are only as accurate as we, and you the member, make them.

One of the most important priorities in the production of the Call Book is the list of suppressions. For one reason or another a few amateurs do not wish their address, and sometimes even their name, to be identified in the Call Book, but this suppression request **MUST** be on file **IN WRITING** in the Executive Office.

Please help the WIA to produce as accurate a Call Book as possible. If you want any changes made to your entry in the 1991 Australian Radio Amateur Call Book, it is not too early to advise the Executive office of the WIA at PO Box 300, Caulfield South, 3162.

Ham Radio Defunct

Hot on the heels of the announcement that the Australian electronics magazine, "Electronics Today International", has ceased publication comes the news that the June 1990 issue of the American "Ham Radio" magazine will be its last.

"Ham Radio" magazine and its associated "Ham Radio Bookstore" have been sold to the publishers of "CQ" magazine.

Existing subscriptions to "Ham Radio" will be fulfilled by "CQ".

Federal Technical Advisory Committee

The Federal Techncial Advisory Committee, or "FeTAC" as it is commonly known, has been very busy of late under the direction of the new Chairman, John Martin VK3ZJC.

Amongst many other items under current consideration, John advises that the new WIA repeater and beacon database has been completed, except for verification of information from VK1, VK5 and VK7. Copies of the relevant sections have been sent to FeTAC representatives in those Divisions. Once those checks have been made, one of the proposals the WIA is now considering is to make the new repeater/beacon database available for distribution to WIA members from the Executive office on computer disk.

John also advises that work is continuing on the UHF Band Plan revision. A set of proposed band plans has been drawn up, and these have already been passed for comment to several panel members of FeTAC. The revision is to be in two stages:

1. Minor changes to the narrow-band modes and calling frequencies on all UHF bands; and
2. Full band plans for 2300 MHz and higher bands.

Other activities include the following proposals that have been circulated to all WIA Divisions and published in Amateur Radio magazine for comment:

1. 6 metre band - new repeater and packet radio channels.
2. 6 metre band - beacon segment above 50.200 MHz.
3. 2 metre band - expansion of packet radio segment to 144.700 - 144.925 MHz.
4. 23 cm band - reinstatement of VSB ATV channel at 1285 - 1292 MHz.

Bandplans for Sale

The WIA has just published a 38 page booklet entitled "Bandplans for the Amateur Radio Service" that gives a background to bandplans and

how they are presented.

The booklet includes detailed bandplans for all Australian amateur service bandplans from 1.8 MHz to 47 GHz.

Update pages will be issued from time to time, for a small fee to cover printing costs and postage, to enable Australian amateurs to have a continually updated convenient reference to the Australian amateur service bandplans.

The cost of this invaluable publication is $2.80, including handling and postage, and is only available from the Executive office of the WIA. Please forward your remittance, made out to "WIA", to "Bandplans, PO Box 300, Caulfield South, Victoria, 3162".

Only 400 copies of this bandplan booklet have been published so you will have to be quick to get your copy before they run out.

Cross Linking Repeater Tones

It seems from some conversations heard "on air", and some remarkably ill informed messages appearing on packet bulletin boards, that there still seems to be some misunderstanding of the WIA/DoTC agreement on the use of repeater tones. Most of these fears seem to be that Australian amateurs will be using three different tone systems on repeaters for cross-linking.

THIS IS NOT THE CASE!!

DoTC has agreed to accept all three systems, and the decision on which system to use has been left to the amateur service. It is now possible for amateurs to agree on a uniform national system that suits our needs, rather than having DoTC make the decision for us.

The WIA strongly supports a uniform national tone system, and this will be settled shortly in consultation with repeater groups throughout Australia. If the WIA has not pursued the policy of deregulation, this kind of consultation would not have been possible.

Is it better to have a uniform tone system decided by amateurs, or a uniform system decided by DoTC regulation?

AR Special Editions

The first "Special Interest" edition of Amateur Radio magazine for several years, the June "Test Equipment" issue, has already become a collector's item.

Unfortunately, because of an error by the printers, the usual number of surplus copies was not printed, so the WIA is unable to respond to requests for individual or extra copies. Look after your valuable membership copy!

The next "Special Interest" edition of the WIA magazine will be the October 1990 issue, when the feature topic will be antennas. The Editors are already accepting articles for this issue but there is still time for a few more. Please remember that technical articles that require editing or drafting need to be submitted well before the advertised closing dates for copy. Articles which are not received by the date of the Publications Committee meeting on August 6th will be too late for the special issue.

As with the June 1990 "Test Equipment" issue, there will be a prize of one year's free membership of the WIA for the author of the article judged to be the best to be published in the October 1990 special "Antenna" issue.

Letter from IARU President

The following letter has been received from Richard Baldwin, President of the International Amateur Radio Union (IARU), and is addressed to Australian radio amateurs:

You, and the Wireless Institute of Australia.

Every decade or so amateur radio is faced with a crisis.

Every decade or so the members of the International Telecommunication Union (ITU) meet for the purpose of deciding whether any changes need to be made in the allocation of frequencies to the 40-odd radio services that inhabit the spectrum. At such a conference, depending on the agenda, each service has to justify its needs and requirements, and the delegates of the administrations have to decide whether, for example, the Amateur Service and the Amateur-Satellite Service can substantiate their need for their existing allocations and whether, perchance, additional frequencies might be allocated to amateur radio at the expense of some other service. Or, and this is always a threat, whether some of the amateur frequency bands ought to be taken away from us and allocated to some other service. That's a disturbing thought, but it can happen, and it has happened.

The fundamental goal and objective of the International Amateur Radio Union (IARU) is to make sure that the Amateur Service and the Amateur-Satellite Service are adequately represented at, and between, international telecommunications conferences. Just to refresh your memory, IARU is a federation of 127 national societies, of which the Wireless Institute of Australia is one.

In preparation for any international telecommunication conference - that is, in preparation for a World Administrative Radio Conference (WARC) of the ITU - IARU, through its three regional organisations, draws up a plan to ensure that the needs of radio amateurs are properly developed and co-ordinated. Then, each member-society of IARU is responsible for making sure that its administration knows of the need of the amateur radio service and that its administration recognises the value of the amateur radio service.

And so you have many individuals involved in the work of the IARU Administrative Council, which co-ordinates the overall WARC preparatory activity, and you have many individuals involved in the work of the three regional organisations, co-ordinating the preparation within the geographic boundaries of each region, and you have many individuals involved in the work of the member-societies, performing the necessary liaison with their telecommunications administrators.

But what about you? Where do you fit into this picture, this preparation for the next World Administrative Radio Conference, scheduled to be held in the first quarter of 1992?

You have an important role to play. You may not be a member of the Administrative Council, nor of the regional Executive Committee, nor of the WIA's cadre of leaders, but you're needed. Why? For support, that's why.

The WIA is the oldest amateur radio society in the world. It has a distinguished record of leadership in the preparation for, and participation in, ITU's WARCs. It has contributed mightily to the work of IARU. But it can continue to be successful, not only as a national society but as a participant in IARU/ITU affairs, only if it has the substantial support of radio amateurs in Australia.

If you are a member of WIA, you are helping it to play a key role in tackling the crisis that faces us in 1992. If you are not yet a member, the WIA needs your support. Whatever happens at WARC-92, good or bad, happens to all of us. With good team work, we stand a chance for success. Join the team!

RICHARD L. BALDWIN,
W1RU,
PRESIDENT IARU.

Historic WICEN Conference

Sunday, 3rd June, 1990 saw a memorable development in the WICEN area, with the first ever National Telephone con-

ference. After considerable behind-the-scenes organisation and planning, at 1355 hours EST all Divisions and the Federal WICEN Co-ordinator were connected through the telephone network to discuss WICEN Divisional organisation and plan further co-ordination and co-operation.

After moving quickly through the circulated motions for voting, several issues for future consideration were aired. Tasks which can be carried out on a National basis were considered, and various Divisions appointed to take further action.

A motion at the WIA Annual Convention called for a review of WICEN at National and Divisional level, so this telephone conference allowed the Terms of Reference to be discussed.

The conference concluded at 1645 hours, with the Divisions agreeing that a similar conference should be held in October 1990. A full outline of the meeting will be published in Amateur Radio magazine as soon as practicable.

Handicapped Radio Amateurs

The WIA recently received, via the IARU Region 3 Association, a booklet entitled "Information Program for Handicapped Radio Amateurs", published by IARU Region 1.

Besides an IPHA report for 1988/1990, the booklet contains "Information by Country", "Nets" and "Technical Information".

The booklet is available from the Executive Office for perusal by any handicapped amateur radio groups.

The WIA wishes to respond to IPHA with information on the Australian scene. If you are involved with amateur radio for the handicapped, please send a brief note of your activities to the Executive Office, together with a contact point.

Test Equipment Winner

After deliberation, the Publications Committee has judged the "Microwatt RF Power Meter" article by Ron Cook VK3AFW as the best of the articles published in the June 1990 "Special Test Equipment" issue of Amateur Radio magazine. As the winner, Ron is entitled to a year's free membership of the WIA. However, Ron, as with an increasing number of WIA members, is now holding a three year membership. Therefore, a cheque for the value of the current year's membership of the Victorian Division of the WIA has been presented to Ron.

When judging the qualifying articles, the Publications Committee asked that a special encouragement commendation be made to Trevor Sheppard, the author of the "Novel Polarity Tester" article on page 9.

Wanted! Contest Co-ordinator

Following the decision at the 1990 Federal Convention to appoint separate Co-ordinators for each of the major contests run by the WIA, the individual contest manager positions have been filled, and are as follows:

Ross Hull Contest
John Martin VK3ZJC
John Moyle Field Day
Phil Raynor VK1PJ
Remembrance Day
Northern Corridors Radio Club
VK Novice Contest
Westlakes Amateur Radio Club
VK/ZL/Oceania
Frank Beech VK7BC

However, no appointment has yet been made of an overall Federal Contests Co-ordinator. At present Neil Penfold VK6NE, the VK6 Federal Councillor, is carrying out the main tasks, but he would be happy to hand over and brief another qualified volunteer for the position.

If you believe you have the skills and enthusiasm to take on this most interesting task, please contact Neil Penfold VK6NE as soon as practicable.

Late Membership Renewal

A reminder to WIA members who are late in paying their subscriptions. If you are more than three months late in renewing your membership, your membership is transfered to a new membership cycle and missed back copies of Amateur Radio magazine can only be provided (if in stock) at a cost of $4.00 each posted.

New UK Callsigns

The March 1990 issue of "Radio Communication", the monthly magazine of the Radio Society of Great Britain (RSGB), summarises planned changes to the system of callsigns in the UK, as the available callsigns in the present "G" series are running out. It seems that, shortly, new UK amateur stations may be using callsigns with prefixes in the MA to MZ range.

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A FRONT END TUNER FOR THE VLF-LF RECEIVER

LLOYD BUTLER VK5BR
18 OTTAWA AVE PANORAMA 5041

In the December 1989 and January 1990 issues of Amateur Radio, we described a VLF-LF receiver which utilised a broadband front end. A problem with this type of front end is that it is prone to cross modulation from very strong signals or noise, outside the tuning bandwidth, but within the broadband range of the front end. When this occurs, it is necessary to reduce the RF input level sufficiently to prevent the problem. However, this also reduces the wanted signal level, possibly well into the noise floor of the receiver. To overcome the problem, we can add a front end tuner such as the one described.

A further advantage of front end tuning is that selectivity at VLF can be greatly enhanced. For example, if a Q factor of 200 can be achieved in the front end tuned circuit, the bandwidth at 10 kHz is only 10,000/200 = 50 Hz. One of the biggest problems in receiving signals at VLF is the high level of noise, both man-made and atmospheric. The VLF signals, of necessity, are transmitted in narrow band modes and restriction of bandwidth received is the most effective way of reducing the noise. Furthermore, the narrow bandwidth is also needed to separate some of the signals closely spaced in frequency. All in all, front end tuning improves the performance of the receiver immensely.

Following the publishing of the original VLF-LF receiver article, there has been feedback from a number of readers interested in the VLF-LF bands. One of these is Norm Burton, of NSW, who has been experimenting with VLF reception for at least 25 years. Norm has written in considerable detail concerning his own experiences and I have given due regard to what type of gear he has found works best at VLF. I will make reference to some of the points he has made in the text.

The Tuning System

According to Norm, at VLF it is very important to tune the aerial and there is certainly nothing wrong in doing just that. However, I have aimed at a tuned circuit system which is not resonated with the aerial. The reasons for this are as follows:

1. Various wire aerials at the home installation, at low frequencies, appear against ground much like a large capacitor in the vicinity of say 400 pF If made part of the tuning system, this residual capacity would have made it difficult to cover the tuning range of 10 kHz to 500 kHz in four bands, as has been done using an ordinary receiver tuning gang
2. An aim in designing the tuner was to make a high Q circuit using a high Q inductor and it was though that loss resistance in the earth system might restrict the maximum Q
3. It was also an aim to make the tuning independent of aerial reactance constants so that any aerial could be used.

Generally speaking, I have found that, at low frequencies, the long untuned length of wire gives highest output voltage when loaded into a fairly high resistance. A value of 1000 Ohms works quite well and the original receiver was designed to load the aerial with 1000 Ohms. My initial design approach for the tuner was to couple the aerial via a voltage follower stage, which presented a high resistance load to the aerial, but drove the tuned circuit in a series mode from its low output resistance so as to maintain high Q in the tuned circuit. This was unsatisfactory as the follower stage introduced cross modulation, the very thing which the circuit was supposed to reduce.

The follower stage was ultimately substituted by a low value resistor, which shunts the aerial, but maintains the high Q. This results in voltage loss from the aerial but this loss is more than made up by voltage magnification in the tuned circuit. (The voltage gain of a tuned circuit is, of course, equal to the value of Q.)

One characteristic of the high Q circuit is that, in the presence of atmospheric static or other transient natured noise, the circuit tends to ring or oscillate on being shocked by the transient impulse For a given Q, the decay time of oscillation is inversely proportional to frequency and at very low frequencies this oscillation is detected as an audio ring when using the BFO Because of this effect, a Q control switch is provided which controls the value of resistance in series with the tuned circuit and hence its Q The idea is to set the switch for the narrowest bandwidth possible consistent with a tolerable amount of ringing in the presence of noise.

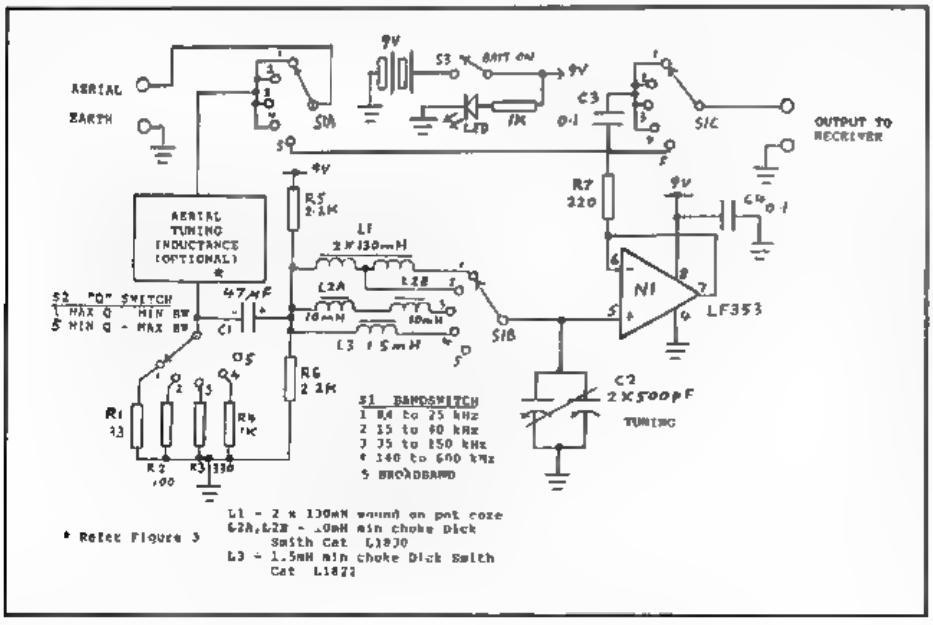


Figure 1 VLF LF Front end tuner

Whilst the circuit design has been based on an untuned aerial, it does not inhibit additional tuning of the aerial circuit to further improve performance. The option of doing this is dealt with in the section headed "aerials"

The Circuit

The circuit of the front end tuner is shown in figure 1. The circuit provides a tunable frequency range of 8 kHz to 600 kHz in four bands switched by SW1B. Other sections of the band switch, SW1A & SW1C provide direct coupling of the aerial to the receiver for broadband operation when the switch is set to the fifth position

The tuning system is formed by inductors L1, L2, or L3, which are resonated with variable capacitor C4. This is a two section receiver tuning gang with a maximum capacity approaching 500 pF per section. Inductor L1 is a pot core assembly with two windings, each 130 mH. The windings are connected in series for band 1 to tune between 8 kHz and 25 kHz. One single winding is used for band 2 which tunes between 15 kHz and 40 kHz. Two 10 mH miniature chokes connected in series are used for band 3 which tunes between 35 kHz and 150 kHz. A single 1.5 mH miniature choke is used for band 4 which tunes 140 kHz to 600 kHz.

The ready wound pot core inductor is one donated by Norm Burton. The 10 mH and 1.5 mH chokes are a miniature type supplied by Dick Smith Electronics.

Resistors R1 to R4, switched by SW2, terminate the aerial and determine the loss resistance added to the tuned circuit and hence the circuit Q.

The high input impedance of voltage follower stage N1 provides coupling to the receiver input with minimal loading of the tuned circuit. This is necessary to maintain the high value of Q in the tuned circuit. For the voltage follower, one half of a JFET operational amplifier package type LF353 is used. This has good high frequency performance and was also used in the VLF-LF receiver for RF and IF amplification. (The other half of N1 package is not used. It was originally intended as an interface for the aerial but, as explained earlier, its use proved to be unsatisfactory.) As an alternative to the amplifier package, an emitter follower stage could be used. For this application, a Darlington connected transistor pair might be advisable to achieve sufficiently high input resistance

For anyone interested in duplicating the circuit, two components specified in the circuit might not be readily available at the local electronics store. The first is the tuning gang, an item not in good supply these days. The best bet is to recover one from a discarded broadcast receiver. Some gangs only have about 350 pF maximum capacity per section but a 3 section gang in one of these would do the job.

The second item is the pot cored inductor. This is an ideal type of inductor for the low frequency bands, if one can obtain the pot core parts assembly to wind one, or otherwise obtain one ready wound with a suitable inductance. An alternative idea was tried out with eleven of the Dick Smith 10 mH chokes connected in series to make up 110 mH. This tuned band 2 from 15.7 to 67 kHz. To lower the frequency for band 1, an 820 pF fixed capacitor was switched across the tuning gang with a fourth switch bank of SW1. This gave a tuning range for band 1 of 11.3 to 15.9 kHz. The maximum circuit Q achievable with the 10 mH chokes was around 50 to 100, not as good as the pot cored inductor, but still quite good.

Changes To Receiver

The front end tuner has been built as a stand alone unit which is simply inserted in the aerial feeder cable to the receiver. However, because of its addition, the 530 kHz trap in the receiver is no longer required and disconnection of the trap provides some improvement to the low receiver sensitivity at frequencies approaching 500 kHz.

Another change is the addition of a selective audio filter. According to Norm Burton, a good audio filter is essential for receiving VLF signals and he suggests a filter bandwidth of 100 Hz or less. Encouraged by this, a simple resonant filter was added to the audio stages of the receiver as shown in figure 2. The tuned circuit is formed by another of Norm's pot core inductors (130 mH) which is resonated with a 0.12 µF capacitor. The circuit is driven in a series mode (much like the front end tuner) from the low output resistance of amplifier N5B As there is voltage gain (equal to Q) in the tuned circuit, the resistive output divider is used to prevent a steep rise in signal level when the filter is switched in.

The frequency of the filter is 1200 Hz, worked out as follows: In the narrow IF mode, the centre frequency is 457.6 kHz. The beat frequency oscillator is needed to receive the narrow band modes and this runs at 456.4 kHz, 1200 Hz lower than the intermediate centre frequency. Hence, maximum signal beat occurs at a fre-

Table 1

Band	Bandwidth Frequency (kHz)	"Q" Position 1 Bandwidth (Hz)	Q
1	10	48	208
1	15	60	250
1	20	84	238
1	25	132	189
2	16	85	188
2	25	121	207
2	35	234	150
3	40	610	66
3	70	802	87
3	120	1140	105
3	150	1360	110
4	150	1830	82
4	200	3480	57
4	300	2910	103
4	400	2300	174

Table 2
Bandwidth For Different "Q" Switch Positions
At 15 kHz On Band 1

Switch Pos	Bandwidth (Hz)	Q
1	60	250
2	83	181
3	145	103
4	226	66
5	360	42

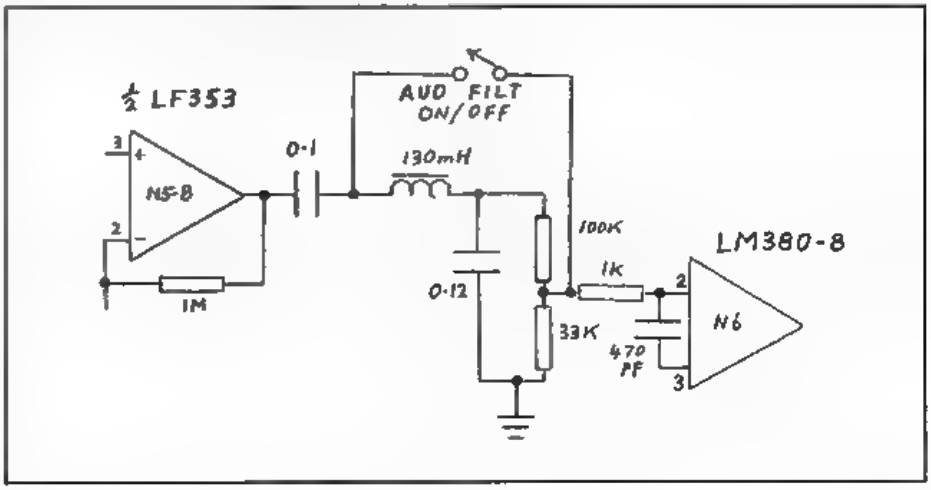


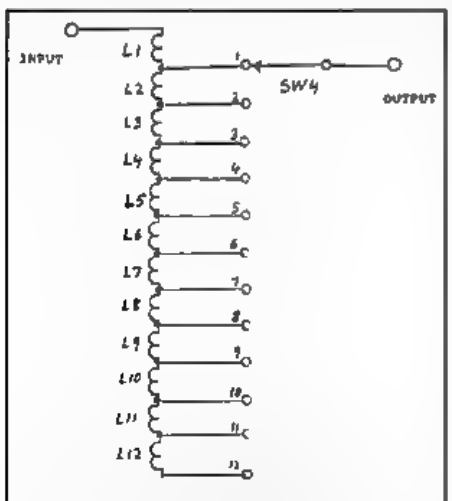
Figure 2: Addition of 1200 Hz Audio Filter to the Receiver

quency of 1200 Hz and this is the tuned frequency of the filter The bandwidth of the filter is 100 Hz and it is very effective in reducing much of the low frequency hash which gets through in spite of the narrow RF bandwidth.

Operation

Operation of the front end tuner, in conjunction with the receiver, can be a little tricky as the front end is not ganged to the receiver tuning. One method of tuning is to set the band switch to the broadband position and first locate the station with the receiver tuning dial The band switch is then set to the appropriate band and the tuning gang is set for maximum signal level. Care must be taken not to tune in to the frequency of a strong signal which would simply enhance cross modulation by that signal. Tuning on the lowest frequency bands is very sharp and on the unit constructed, a 2.5 to 1 reduction gear was fitted to the tuning knob to assist in adjustment. A calibrated scale marked in frequency for each band was also added to simplify setting of the front end tuning near the frequency marked on the receiver tuning dial. With this aid, the front end tuning is then simply trimmed for peak signal level with little chance of false tuning.

A problem at VLF & LF is noise from mains operated equipment in the local vicinity and particularly in one's own house. I find it necessary to turn off fluorescent lamps, triac controlled light dimmer switches and TV sets. The TV line time base at 15625 Hz, in the middle of the VLF band, is a particular nuisance. This type of noise tends to disappear after midnight when everyone has switched things off and gone to bed.



L1 150µH min choke
L2 – 1mH min choke
L3-L12 10mH min choke

Figure 3. Aerial tuning circuit

Measured Performance

Table 1 lists measurements taken of bandwidth and Q for various frequencies in each band of the tuner and with Q set maximum. It is interesting to observe the high Q factors obtained, particularly for bands 1 & 2 which use the pot core. This is something which could not be achieved in the early days, before ferrite cores, unless regeneration was applied.

Table 2 lists measurements taken of bandwidth and Q at 15 kHz on band 1 for different settings of the Q switch. This shows that a 6 to 1 range of bandwidth and Q can be selected.

Aerials

At low frequencies the usual wire aerial is but a fraction of a wavelength long and as a general rule, the more wire put up in the air, the greater is the signal level we will capture. As one would expect, at the home location the longest of three wire aerials available gives the highest signal level. The signal level is also improved by about 6 dB when all three wires are paralleled together.

Earlier mention was made of tuning the aerial and this is an optional addition which can be made to the front end circuitry. By resonating the inherent capacitance of the aerial with series inductance and loading the output into the terminal resistance set by the Q switch, a further gain in signal level of at least 10 dB is achieved. The three paralleled wires at the home location measure a capacitance of around 1000 pF and resonance with this, over most of the VLF band, was made possible by tapping along the bank of series connected 10 mH chokes used in a test previously discussed. Resonance was found to be fairly broad and the 10 mH increments were proved to be small enough to allow peaking of the signal.

The front end unit was ultimately fitted with a further switch, connected to ten of the 10 mH chokes and two other chokes, for tuning the aerial. The circuit diagram of this is shown in figure 3 and shown as an optional block in figure 1. The 10 mH chokes provide aerial tuning adjustment in fine steps between 13 kHz and 50 kHz. As there were only two spare positions on the 12 position rotary switch for the higher frequencies, one had to be satisfied with 1.15 mH to resonate around 150 kHz and 150 µH to resonate around 400 kHz. As stated before, tuning is quite broad and even with this compromise, some gain is achieved over the whole of the higher frequency range by the addition of the inductors.

As is well known, the radiation resistance of an electrically very short aerial is but a fraction of an Ohm and at resonance we see a low resistance, essentially that of the earth, in series with the loss resistance of the inductor. As it turns out, this works out quite well to match into the low terminal resistance set by the Q switch. It must be pointed out, if not obvious, that the inductance values used in figure 3 are selected for a particular aerial capacitance and might have to be varied to suit another particular aerial.

At this stage, a brief mention of Norm Burton's aerial system might also be of interest. He uses a 33 ft 6 wire cage with 42 ft of 4 wire cage down lead. The cage at the top increases the capacitance to ground and raises its effective length and hence its radiation resistance and aerial efficiency. He also uses a frame aerial which gives lower signal level but enables him to phase out some of the interference he gets from localised power lines. Norm tunes all his aerials and considers it essential for good reception at these low frequencies.

Some Final Remarks

It seems very clear that a highly selective front end is essential for good reception at VLF. A narrow bandwidth is needed to restrict the noise and this is more easily controlled in the IF stages of a superheterodyne although some form of front end tuning is clearly desirable to prevent cross modulation from strong local stations. What might seem less apparent is the fact that the noise level on this band is so high that the noise itself can cross modulate the desired signal. It seems essential to restrict the noise bandwidth as much as possible before amplification takes place and herein lies the need for the highly selective front end.

All this ties in with much of what Norm Burton has told me. He has two superheterodyne receivers and a Marconi CR200 TRF receiver which tune the VLF band The CR200, which has two tuned RF stages before detection, outperforms the other receivers both in minimising noise and separating one station from another, not to mention the odd spurious responses the superhets happen to generate He has also pointed out how single valve regenerative receivers were successfully used on these low frequency bands in the early years. By using regeneration, effective Q would have to be high with resultant narrow bandwidth and good selectivity. I am almost tempted to build one up to see how well it works.

Dick Hope VK4DLJ informs me that there is quite a lot of interest in ELF-VLF-LF in the USA and there is an organisation called the Longwave Club of

continued on page 25

A SHACK FULL OF JUNK

KEN ENGLAND VK4JPE
31 MORGAN ST ROCKHAMPTON 4700

Many amateur shacks boast very little in the way of test gear Some shacks seem to contain a multimeter and a VSWR meter (left over from CB days?). Perhaps the multimeter is a "you-beaut" digital unit that scrambles every time it feels RF.

But the well equipped shack for a home brewer or avid kit builder should contain more. The other day I bought a book on the design of phase lock loop circuits. This excellent publication even included instructive experiments to be carried out using various integrated circuits. But to do the experiments in full required an "Oscilloscope. Just about any general-purpose type will do, but it must be at least a dual-trace type."

Also required were a function generator, a frequency counter and a VOM. After this list was swallowed, there were a "number of useful circuits" requiring logic switches and 7-segment displays.

Now I am sure that the experiments are most instructive. But if I felt wealthy enough to own dual trace scopes and function generators, I might have bought sufficient crystals at twenty odd dollars each and never have given the idea of replacing them with a cheaper PILL synthesiser a thought!

But this is no excuse for having no test gear. The amateur with ambitions of home brewing can set himself up with some useful units for quite a low cost.

In spite of what some amateurs with access at their workplace to the latest in multi-wobbulated spectrum sweepers may tell you, there is nothing wrong with "old valve gear". A signal generator full of octal tubes may not be good to 500 MHz but it will certainly work at 455 kHz and probably at 10 7 MHz as well for alignment jobs. A CRO with a 2.5 or 5 cm tube may be no good at 15 MHz, but for IF and AF work it's worth trying What about those off-frequency tones in the packet modem?

A Load Of Old Rubbish

Have a look around the junk shops in your area, every now and then Not long ago I gave a few (very few) dozen dollars for a Philips CRO and an Eddystone 5-band receiver. Both units were truly filthy. On the outsides there was dirt on the cases where most things haven't even got places!

But both units had newish silicone-rubber-insulated mains cords. This led me to believe that they might have been more or less OK. "Well, *caveat emptor*" I thought and produced my cash. I took both units out of the shop. I wiped both units on the grass to remove the loose muck. I put both units in the car boot.

Later, both units got a good dusting with a (dry) car washing brush. I pulled the case off the CRO. All of the internal wiring was silicone insulated and looked in good condition. The chassis looked like new! Two of the timebase capacitors were obviously late replacements. I plugged the CRO in. I turned it on. Nothing happened. No sparks. No smoke No funny noises. No display on the screen either! I switched it off and turned to the Eddystone.

A Digression

The story of the Eddystone was much the same. Silicone insulation and one or two newish electrolytics inside. "Miniature" valves instead of the octal base ones in the CRO. I found a metre or so of wire and attached it to what seemed to be the medium wavelength antenna terminal. I plugged the set in and switched on. No smoke. No sparks. No station, but a gentle hum from the set. Aha! Tuned near 29 MHz eh? No wonder nothing was heard on a winter afternoon.

The other end of the band selector. Swept the broadcast band. The local ABC station on 837 kHz at 10,000 Watts and maybe 10 km away as the crow flies was just audible. The knob for the volume control pot was missing. No way was I going to touch that with the set turned on.

Over the next few weeks, I found a high resistor in the detector circuit and replaced it. I had two suitable knobs for the pots along the front panel. I twiddled the local oscillator coil until broadcast stations appeared where they should have been. I got two of the short wave bands lined up as well, courtesy of WWV. Meanwhile I resprayed the case with the remains of two cans of enamel from the back of the garage cupboard. I re-polished the aluminium panel at the front with a wire brush in a drill chuck. By this time I was well sucked in. Some old dry transfer lettering at the back of the desk got pressed into service for the newly polished panel. Soon the old Eddystone looked good and was starting to perform.

A visiting amateur spotted it in the shack one day. I told him that two bands were not working properly yet. He said "No worries", or words to that effect. "*Caveat emptor*" I thought again, and pocketed his cash.

Cost of parts put in — might have been $5.00. Cost of paint — maybe $5.00, but if I hadn't used it on the radio case the cans would probably have gone flat anyway. Profit on deal — probably nil, but it paid for itself, the CRO and most of the bits put into both.

Back To The CRO

The old CRO sat under the house on the bench for a few hours while I fiddled about with the Eddystone. While washing up after dinner it came to me that the CRO spot was probably off the screen. In any case the bench was brightly lit when I first tried the CRO. It was quite possible that a faint glow on the screen might not have been visible. So back down the stairs I went and on went the CRO again. Yes, there was a faint glow. I twiddled the vertical and horizontal pots. The spot appeared. A little more fiddling and there was a distorted sine wave on the screen with my finger on the vertical input. Obviously the CRO was in fair condition. I selected the next time base frequency. The distortion all but disappeared. Better and better!

Ted Roberts VK4QI was good enough to look into his files and came out with a schematic for the CRO. Some time was spent tracking down faults like a dud synchronising pot and a leaky capacitor. But I have gained some knowledge of how a basic CRO works, as well as a functional instrument, for the cost of several hours study of it, and perhaps a few dollars in parts.

The Next Heap Of Junk

That same Ted VK4QI one day sold me a huge old RA Ratcliffe Model 200 signal generator for a small consideration. It weighs a tonne, but it's almost all there Inside were three 6V6GT valves, common enough even today But the rubber insulated wiring was, well, how shall I put it? Working without a schematic, the old wire was replaced with new silicone insulated material, following the old routing. I replaced one capacitor and checked the old resistors. Those on which

the colour coding could be read were replaced if necessary. Those whose values were illegible were left in place. Meanwhile I sketched a schematic by following the wires and filled in component values wherever they could be read. Most of them couldn't.

Greatly daring, I switched the generator on. A short length of wire on the output terminal lay near a receiver tuned to 510 kHz, as low as it would go. I selected range "A". I turned the big, graduated brass disc. Noises came from the speaker at several distinct spots. I turned a kit-built digital frequency meter on. The generator was on 102 kHz, the shields were off and the fifth harmonic was getting out. The frequency meter showed 90 kHz near the bottom of the "A" range and over 27.5 MHz at the top of the "F" range. Nearly four volts of RF were available around 1 MHz.

Some parts of the signal generator are still missing. There used to be a "Palec" brand meter labelled "CARRIER" at the top right. Some of the wiring around this is gone too. Perhaps a couple of the unknown resistors inside are higher than they should be. Perhaps one or two of the valves are not what they once were. But the unit still produces radio waves over a wide range of frequencies, and stays on frequency once it has warmed up for ten minutes or so. The internal modulation around 400 Hz works. That is certainly enough to align any receiver with an IF below 27 MHz. Beats trying to do it with a GDO!

Parts needed cost around $15, including a BNC panel socket added to the output terminals for connection to coax. A 20k Ohm pot controlling the buffer amplifier was scratchy. None were stocked at the local electronics stores, but a new 50k Ohm pot with a junkbox 47k Ohm resistor in parallel does the same job. Perhaps the next step is to remove the rather sad looking case and re-spray it as well.

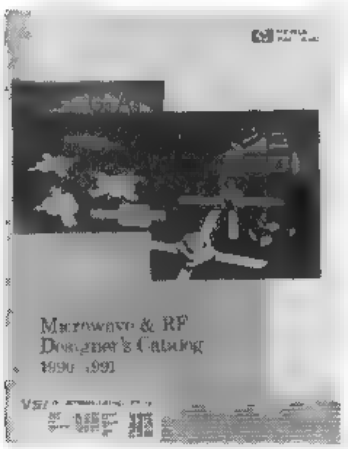
A signal generator or a modest CRO need not cost hundreds of dollars. What does it matter if the amplifiers and oscillators inside are solid state or vacuum tubes as long as they work properly and the unit is safe? In amateur service, signal generators and CROs are unlikely to be turned on all day, every day. Even if the valves are old and on the way out, they should last years. If you can lay your paws on spare valves the chance of a terminal failure is a slight.

Perhaps I have been lucky in coming across two instruments which have cost me considerably less than a hundred dollars. I don't know. But keep your eyes peeled. A faulty old oscilloscope may appear in a junkshop window one day. The fault might be as simple as a worn potentiometer or a leaky capacitor. A few hours work in tracking it down and a few dollars in replacement parts could see you the proud owner of a shack full of junk!

BOOK REVIEW

MICROWAVE & RF DESIGNER'S CATALOGUE 1990-1991

RON FISHER VK3OM



This latest catalogue produced by Hewlett Packard is distributed in Australia by VSI Electronics (Australia) Pty Ltd.

The book is divided into 18 sections, and includes the following devices and applications:

* High reliability — this shows how to select devices to achieve desired reliability parameters
* Silicon bipolar transistors — characteristics and applications
* Schottky barrier diodes — characteristics, including low-cost surface-mounting types, for switching applications
* PIN diodes — applications.
* Step recovery diodes, ranging from UHF to Ku band.
* Microwave test accessories — Hewlett Packard RF coaxial components such as switches, attenuators, detectors and coaxial connectors.
* Interface products — applications in high-speed fibre optic systems through to medical diagnostic systems
* Amplifiers — emphasises broadband amplifiers with exceptional gain flatness and phase linearity, also variable gain amplifiers with very fast response time

Other chapters cover such things as GaAs MMICs, switches and switch drivers, mixers, impulse generators and micro-bias networks to cover 0.1 to 18GHz. This book is an obvious necessity for anyone working in the field of RF and microwave design.

Enquiries should be directed to VSI Electronics (Aust) Pty Ltd at 16 Dickson Avenue, Artarmon, NSW, 2064.

Most of us are familiar with the cheerful and friendly voice of Ron Fisher VK3OM. This seems to be as good an opportunity as any to show readers what he looks like. He is pictured here, resplendent by his rig at "Gaalanungah", Beaconsfield Upper. Ron is well known as Federal Tape Co-ordinator and Equipment Review Editor of AR. His untiring efforts as Executive Office Librarian continue unabated. In addition to all this, he applies his vast knowledge of amateur equipment to casting a critical editorial eye over the Hamads. The WIA and this magazine would be much the poorer without Ron's willing voluntary contributions. Good on yer Ron!

SIGNAL STRENGTH, "S" METERS AND PREAMPS

GORDON McDONALD VK2ZAB
59 WIDEVIEW ROAD, BEROWRA HEIGHTS, 2082.

Amateur Radio Dxers, particularly VHF and UHF DXers, receive some strange signal reports at times. For example, reports like: "You are S9 with the preamp in". (or out).

Well now, I don't know about you but I find such reports more than a bit annoying because I have gone to a lot of trouble with beams, linears and the like to ensure that my signal at the receive station is as good as I can make it and then this guy gives me a report which implies that I might as well have not bothered because MY best efforts are dependent on HIS receiving gear!

This is surely a strange way of looking at things. Here is another peculiar comment you may have heard: "I tried a preamp once but it brought the noise up as well as the signal so I don't use it now". Did this fellow really think that the preamp would amplify one form of input and not another?

Yet another anomaly can be found in the fact that even though manufacturers and equipment reviewers tell us that the transceivers of today are chock full of the latest "state of the art" technology, we are still unable to make an accurate, and therefore useful, assessment of the level of the signal received!

It seems to me that signal strength, S-meters and preamps are not well understood, and that we are not as well served by manufacturers as we might be if we knew a bit more about what could reasonably be expected of them

Let's start to change this sad situation by reviewing the history of signal strength and S-meters up to now:

RST System

There was a time when amateurs didn't have meters or LEDs to show the strength of signals received, but even so they felt that the transmitting station might like to know how he was getting out, so they devised a code based on how they perceived the signal to be more or less. This was the "S" part of the RST system. The other letters stand for Readability and Tone, but will not be part of our present discussion. Anyway the idea was to try to match the strength of the signal heard with one of the choices listed in a published table

The table lists nine possible signal strengths. I don't know why nine was chosen instead of say ten but the point is that the system has become firmly entrenched in amateur radio practice, and so we would be hard put to change it now even if there seemed to be a reason for doing so.

RST "S" Table

Estimate Of Signal Received	Report
Faint signals, barely perceptible	S1
Very weak signals	S2
Weak signals	S3
Fair signals	S4
Fairly good signals	S5
Good signals	S6
Moderately strong signals	S7
Strong signals	S8
Extremely strong signals	S9

S-Meters

The invention of AGC provided a voltage in the receiver which was proportional to the level of the signal received, and it was a simple step to feed this to a meter on the front panel to indicate the relative signal strength. However, it now became necessary to assign a specific level of input signal to specific S-meter readings because obviously the meter itself was in no position to know what constituted say "Good" signals. A standard was required.

The standard used by at least one receiver manufacturer during WW2 was for S9 to equal 50 microvolts and for the S points to be spaced by two to one in voltage ie 6 db.

Thus S9 = 50 microvolts, S8 = 25 microvolts, S7 = 12.5 microvolts etc.

Of course all this applied to HF receivers, and it wasn't received with universal enthusiasm because, for one thing, the sensitivity of the receiver differed from band to band, making it difficult to calibrate the meter accurately. A really accurate S-meter added complexity and cost, which could not be justified except for receivers designed specifically as signal strength measuring instruments.

What about VHF? Well you didn't need a meter at VHF because the signals were either there or they weren't. There was no in between with line of sight propagation. VHF signals hadn't learned to propagate beyond the horizon at the time

Since that time, the situation has deteriorated to the stage where we now find receivers with meters marked in S points, which are anything from 10 dB to 1 dB apart, even on the one meter, and receivers where the S-meter remains firmly on the zero for all signals short of a whistle from the ham next door running a California kilowatt into his stack of eighty yagis turned in your direction. Then there are (yuk) LEDs.

It also seems that manufacturers think that we are gullible enough to believe that the better of two receivers tuned to the same signal is that one with the biggest S-meter reading!

Unfortunately, lack of knowledge of S-meters can also be detected among equipment reviewers, who insist on either ignoring the S-meter altogether or else treating it as an intrusion on the front panel which prevents the knob count from being raised from 497 to an even 500. The idea that a properly calibrated S-meter may be of more use than a fancy digital frequency readout or the provision of 2003 memories apparently hasn't occurred to them.

We are all to blame for this state of affairs to some extent, because we haven't explained that antenna measurements plus study of propagation and path losses make accurate signal strength measurements mandatory, and we can't see why we can't use our station receiver for this purpose — rather than try to justify the purchase of one of those special measuring receivers mentioned earlier.

Furthermore we haven't really defined a standard for our S-meter We will correct that omission right now.

A Standard Scale For Amateur S-Meters

The S9 = 50 microvolts with points 6 dB apart introduced during WW2 is quite reasonable at HF but at VHF it is no good at all, because 50 microvolts at say 2 metres is far more than an "Extremely strong signal". Also if we count down in 6 dB steps from that point we will run out of scale when we are still umpteen dB above the noise.

At one IARU regional conference it was proposed to adopt the WW2 scale for

HF and a scale with 6 dB steps but with S9 = 5 microvolts input at VHF. This is a sensible standard and no other has ever been seriously proposed, so why not proclaim it as the S-meter standard for amateur radio right now!

The only addendum required is to state that the 5 or 50 microvolts is applied across 50 Ohms.

Better yet, let's define our S points in terms of the power output of a signal generator of 50 Ohms impedance supplying the input to our receiver. We will express the power in decibels relative to one milliwatt (dBm). Thus:

VHF/UHF Scale

Signal Report	Input dBm	Input µV
S9+20dB	-73	50.00
S9+10dB	-83	15.81
S9	-93	5.00
S8	-99	2.50
S7	-105	1.25
S6	-111	0.63
S5	-117	0.31
S4	-123	0.16
S3	-129	0.08
S2	-135	0.04
S1	-141	0.02

HF Scale

Signal Report	Input dBm	Input µV
S9	-73	50.00
S8	-79	25.00
S7	-85	12.50
S6	-91	6.25
S5	-97	3.12
S4	-103	1.56
S3	-109	0.78
S2	-115	0.39
S1	-121	0.20

Thermal Noise Floor

It is worth noting that the VHF/UHF S1 level is close to the level of the thermal noise floor of a telephony receiver with its antenna pointed towards the earth horizon. In this case the thermal noise POWER available to the receiver is given by

$$P = kTB \times 10^3$$

where: P = Power in milliwatts
k = Boltzmann's constant
= 1 38 x 10 -23 Joules/Kelvin
T – 290 K. The agreed standard earth temperature
B = Bandwidth in Hertz.
(See Appendix 1)

This is seen to be equal to -174 dBm/Hertz, so the receiver will see that power in every Hertz of its bandwidth plus any noise it makes itself.

For example: If our receiver was noiseless and had a bandwidth of 2000 Hertz it would have a noise floor of: (-)174 + (10 log 2000) = -141 dBm. That means that the weakest signal it could detect (at the same level as the noise) would be S1! However if it had a noise figure of say 6dB, which is more likely, its noise floor would be -135 dBm and of course the weakest signal it could detect would be S2!

On HF the level of hash is much higher than this due to sources of noise other than thermal, so a higher starting point is required for our scale. ie 20 dB higher at -121 dBm.

We should note that if the antenna noise temperature is less than 290 K due to it pointing elsewhere than at the earth the theoretical minimum noise floor will be better than -174 dBm/Hertz.

S-Meter Calibration

Now that we have a standard scale for our S-meter, how do we go about calibrating the one we have or if we haven't got one what do we do about it? Obviously there are as many different circumstances as there are types of receiver so all that can be done here is to set out some general rules.

1. If your receiver has a meter and calibration pots: Take a calibrated signal generator tuned to the frequency of interest and connect its output to the input of the receiving system. Adjust the signal generator output to S1 level as given in the table and set the meter to read S1 using the minimum set pot. Then adjust the signal generator output to S9 from the table and set the meter to S9 using the maximum set pot.
   The two pots will almost certainly interact, so go back to S1 from the signal generator and read just that pot for S1 on the meter, then to S9 again and readjust that pot. Alternate from one end of the scale to the other until S1 output from the signal generator indicates S1 on your meter and S9 from the generator indicates S9 on your meter without further adjustment of the pots.
2. If your receiver has a meter but no means of adjustment: limited amount may be possible if it has an AGC pot but failing this the only thing to do short of modification is to feed the signal generator in as in (1) and then record the reading on the meter for each S point level set. ie make a calibration chart.
3. If your receiver has AGC but no meter: Connect a sensitive (50 microamps per volt) external meter to the AGC line. Some receivers provide access to the AGC line via an accessories socket at the back. Check this before soldering about in the works. The meter will require a series resistance multiplier. You will have to determine its value experimentally. When you have a meter proceed as in (2).
4. If you have no meter, and you can't use the AGC for any reason, you may like to try a modification to the receiver along the lines of providing a separate IF amplifier and detector specifically for the purpose of driving the S-meter.

This approach would probably result in the best S-meter arrangement of all. What's more, there are ICs made for this purpose! Receiver designers please note! There is more about this in the appendix.

The Preamp Connection

The reason for using a preamp at VHF/UHF is illustrated under "Thermal Noise Floor". The 6 dB noise figure given for the receiver in the example is fairly typical of the better receivers around, and when we add the feeder cable and connector losses to arrive at the receiver SYSTEM noise figure, we may be lucky to make 8 dB! With a good preamp mounted right up at the antenna we should be able to reduce this to about 2 dB to bring about a 6 dB improvement in our minimum detectable signal, and our signal to noise ratio generally.

Incidentally, the weak signal performance of the average VHF/UHF receiver of today without a preamp is about the same as an average vacuum tube preamp of the late 1950s

OK so we accept that we need a preamp. Suppose that we make a beaut GaAsFet design with less than one dB noise figure and 18 dB gain and install it up the pole.

However, on switching on in anticipation of hearing all those signals that were in the noise before, we are brought to a disappointed halt by observing that the S-meter, which was reading about S2 noise before, is now reading about S5 noise

Still, instead of cursing the preamp as a waste of time and money, we realise that if the S-meter could "see" antenna noise before it couldn t fail to increase its indication of it now that we have put 18 dB gain in the antenna to receiver path So what do we do now? Well we certainly don't pull out the preamp. Our noise figure has in fact improved just as the theory predicted it would. So how do we get the S-meter to read correctly?

Solutions I have heard include installing an attenuator (18 dB?) between the antenna and preamp or between the preamp and receiver! The first of these would result in the noise figure of preamp becoming 1+18 = 19 dB. Hardly an ac-

2 METRE METEOR SCATTER TESTS IN VK4

A TEN MINUTE CW TRANSMISSION IS HEARD EVERY DAY FOR A YEAR 1350 KMS AWAY

JOHN ROBERTS VK4TL
16 KAMBARA ST WHITE ROCK 4868

The RSGB manual relates the performance of meteor scatter as "little more than occasional "pings" of signal. I am not sure the word "ping" is a good description as the signals I hear are usually vowel sounds when short such as UH! and AH! and devoid of a bell-like characteristic such as the word "ping" indicates. To set up a range, one needs a distance of 1000 to 2000 kms and a few dedicated people who will turn up for skeds. The range was conveniently Cairns to Brisbane with VK4TL in Cairns and VK4s QV and AZK in Brisbane, sometimes assisted by 4SU and 4YMR. All four Brisbane stations have been receiving the test. The time was picked to enable maximum attendance to ensure continuity of tests and not for optimum conditions. Special permission from DOTC was sought and granted for the limited high power conditions. Tests began in July 1988 and continued day by day until July 1989, and now continue weekends only.

The equipment used at VK4TL IC271/4CX50B 400 Watts/LDF5-50 to a 10 element J Beam. VK4AZK IC29 with J310 preamp LDF4-50 to 11 element ATN yagi and VK4QV TS711A Nuteked/Preamp/LDF4-50 to 16 element Tonna.

In order to reduce variables, antenna aiming was kept on target, the largest antenna being the 16 el Tonna. The distance Cairns/Brisbane at 1413 kms compares with the Melbourne/Brisbane distance of 1406 kms. Cairns/Sydney at 2000 kms would have been within the test range and it is regrettable we had no one there. Liaison was conducted on 14.345 MHz. It is amazing how many other liaison nets were heard there from around the globe on EME or terrestrial matters.

At 6.50 am local time until 7 am the keyer sent VK4TL K with a 6 second gap for receiving. The frequency picked was 144 3 MHz and the time of operation was intended to dovetail with other VK2 operations on the frequency at the time. Recorded meteor showers in the Northern Hemisphere produce enhanced propagation. It is not a known fact whether or not their efforts are an influence south of the equator.

Some attention was paid to the correlation but only Quadrantids early January produced 6 days when complete callsigns were received on January 3-8. If other periods like this had occurred it might have appeared conclusive but it is more probable to be a period of ducting.

The results — VK4TL was heard in Brisbane every day someone was available. Absenteeism counted for less than ten days. QSOs were logged with VK4AZK and VK4QV. The difference between being heard as 400 watts PEP, and 400 watts CW was very apparent and I hope that the lesson has been well learned. This was an extra plus ensuing from the special licence conditions. Much more remains to be done in this field. We know that the time was picked for practical reasons. Tests need to be carried out at other times of the day to see if this type of propagation is still there at midday for instance. Alas my already flogged helpers would not turn up for skeds at midday. I stopped asking them; I need friends too!

If our efforts encourage others to become involved in tests such as this then it will have been more worthwhile. Since it uses only a tiny portion of your day (15 minutes) this cannot be a barrier. Nor is the gear needed an obstacle, as a good yagi which can be home brewed, a preamp two metre SSB rig or if that's too expensive a convertor feeding an HF transceiver. The receiving end is every bit as important to the operation as the transmitting end.

The ERP was increased at VK4TL for a short period with a stack of 4 x 9 element J beam copies. VK4LC and others reported a worthwhile increase in strength. These antennas and others are now packed away pending a move to an area where I can operate 6 metres again. (Does that make any sense?)

Propagation by this mode would appear to have no practical value, as I imagine that even "packet" would require a correctional signal, which is unlikely to be coming. I will have to make do however and pretend it's a sport akin to DX on 6.

My great thanks for support in this project go to John VK4AZK and Angus VK4QV. Also supporting, Mike VK4YMR, who provided numerous reports and Arnold VK4SU, who during the year worked on his antenna system until he could hear me.

The tests have continued through 1990 on Sunday mornings at 2050Z to 2100Z but should conclude about June this year. ar

Signal Strength, "S" Meters and Preamps continued from page 15

ceptable solution. What about the second? Well the noise factor of networks in cascade is given by the formula:

$$F_{ab} = F_a + ((F_b - 1)/G_a)$$

Note that these are not logarithmic units. ie: Noise Factor = Antilog (Noise Figure (dB)/10)

Substituting values of 1 dB preamp noise figure for F_a, 8 dB noise figure for receiver with cable etc losses (F_b) and 18 dB for our preamp gain we find that our system noise figure becomes a respectable 1 34 dB. However if we blow our receiver noise figure out to 8+18 =26 dB by putting that attenuator between it and the preamp we find that the system noise figure is now 8.8 dB and we are worse off than we were before we put in the preamp.

Obviously the only answer is to calibrate the S meter by feeding our signal generator into the system in front of the preamp!

It is equally obvious that if the S meter is properly calibrated to the receive system an S9 signal is an S9 signal regardless of whether the system includes a preamp or not and the information in the report at beginning of this article is redundant.

Conclusion

We have explained why an S meter is an essential tool for the serious amateur and we have provided a logical standard scale. We have explained why a preamp is necessary at VHF/UHF and what has to be cone to the S meter when the preamp is connected to the receiver.

There is now no valid reason why manufacturers should fail to provide and there is certainly no excuse for equipment reviewers who fail to criticize any equipment which does not measure up

In the meantime let's see if we can calibrate our present receivers to the standard and give some sensible reports.

Appendix

(1) The noise bandwidth is not the same as the signal bandwidth. The relationship between the two is complex and beyond the scope of this article. However for most purposes including ours the noise bandwidth can be taken to be 1.57 times the signal bandwidth. ar

QSL CARD GENERATOR

RON CHURCHER VK7RN
PO BOX 277
DEVONPORT 7310

When deciding what their QSL card is going to look like I think every one would like to think that it is a little different than the average style of card — perhaps with a little more personal approach in design.

When taking your requirements to a printer, you soon discover that anything "different" starts to put the cost up, so I went to my local friendly camera centre and found that, for a fairly large quantity, I could get super-size prints of my shack setup showing yours truly etc for very little more than the cost of normal printed cards.

Then came the problem — how do I print the details on the back. Normal stamp-pad ink soaks into the photographic paper so I couldn't use a rubber stamp.

My trusty Microbee came to the rescue and I set up two programs in Microsoft basic — one for posting direct and the other for use via the Buro

As readers will see, it's a very basic program for use with a DP100 printer It would not need much changing for use with other computers. I did not attempt to link it directly with my computer logbook as I foresaw a few problems doing so.

I've tried to make it "user friendly" and as foolproof as possible (I need it to be!!). I hope it may give someone looking for something a bit different some ideas.

VK7RN

RON CHURCHER, P.O.BOX 277
DEVONPORT. TASMANIA. 7310

To radio VE3BAY/Ray
Confirming QSO on 14.147 M/H
Date 30/7/89 Time 1100 UTC
Your signal was 5/9
Txcr is Icom 720 + IC2KL amp.
Antenna is CUE. QUAD.

MR RAY PELLOWE
7 DONCLIFFE DRIVE
TORONTO ONTARIO
C A N A D A M4N 2E5

Thanks Ray for the chat
This is being used as an example of the way my QSL card is printed out on the computer. It allows for three lines right across the card if required.

VK7RN

VE3BAK

CANADA

RON CHURCHER, P.O.BOX 277
DEVONPORT, TASMANIA, 7310

To radio VE3BAY/Ray
Confirming QSO on 14.147 M/H
Date 30/7/89 Time 1100 UTC
Your signal was 5/9
Txcr is Icom 720 + IC2KL amp.
Antenna is CUE.QUAD.

Thanks Ray for the chat
This is how it comes out if the card is being sent via the QSL Buro. It just cuts out the full address and prints call and country in top corner.

Stolen Equipment

Stolen from W Watt VK2ZQW 5 Brighton Rd, Peakhurst 2210 on 11/1/90

BWD 804 10 MHz Scope Set 51767

Kenwood TS520 HF Transceiver Ser 010296

Kenwood TV506 6m Converter Ser 720089

Kyokuto FM144 VHF FM Transceiver Ser 8296

Microwave 40 W 144 MHz Linear Amp

Yaesu YC-355D 200 MHz Frequency Counter

Stolen from Max Mondaio VK2AML 8 Seymour St, Croydon Park 2133 on 16/5/90

Drake TR-7 transceiver serial no 2333 inscribed with name Haagsma.

Stolen from Mike Hewitt VK3KMJ 2m Kenwood TR75IA Ser 705 0512 Contact owner Ph (03) 874 6182

```
10 REM *** PROGRAM  'QSLCARD
20 REM *** PRINTS CARDS FOR BURO
30 REM
40 REM *** TYPE IN DATA FOR PRINTING
50 INPUT "CALL";A$
60 INPUT "NAME";B$
70 INPUT "COUNTRY";C$
80 INPUT "DATE";D$
90 INPUT "TIME",E$
100 INPUT "FREQUENCY";F$
110 INPUT "SIG. STRENGTH";G$
120 INPUT "ANTENNA";H$
130 REM *** THREE LINES OF PERSONAL REMARKS
140 INPUT "REMARKS";J$
150 INPUT "REM.2";K$
160 INPUT "REM.3";L$
170 INPUT "ARE ALL DETAILS CORRECT -- Y/N";ANS$
180 IF ANS$ = "N" GOTO 50
190 REM *** PRINTER CODES
200 ESC$= CHR$(27)
210 LPRINT CHR$(27);"8"
220 LPRINT CHR$(14)TAB(3)"VK7RN"
230 LPRINT TAB(30) CHR$(14);A$
240 LPRINT CHR$(15)"RON CHURCHER, P.O.BOX 277"
250 LPRINT "DEVONPORT,TASMANIA,7310"TAB(60);C$
260 LPRINT
270 LPRINT "To radio "A$;"/";B$
280 LPRINT "Confirming QSO on ";F$;" M/H"
290 LPRINT "Date "D$;"       ";"Time  "E$;" UTC"
300 LPRINT "Your signal was ";G$
310 LPRINT "Txcr is Icom 720 + IC2KL amp.
320 LPRINT "Antenna is "H$
330 LPRINT
340 REM *** STANDARD LINE WITH CONTACT'S NAME
350 LPRINT "Thanks "B$;" for the chat"
360 LPRINT J$
370 LPRINT K$
380 LPRINT L$
390 LPRINT CHR$(18)
400 INPUT "ALL OK? - DO YOU WANT TO RETYPE -- Y/N";ANS$
410 IF ANS$ = "Y" GOTO 170
420 END
```

```
10 REM *** PROGRAM  'QSLPOST'
20 REM *** PRINTING CARDS FOR POSTING
30 REM *** TYPE DATA FOR PRINTING
40 REM
50 INPUT "CALL";A$
60 INPUT "NAME";B$
70 INPUT "ADDRESS 1";M$
80 INPUT "ADDRESS 2";N$
90 INPUT "ADDRESS 3";O$
100 INPUT "ADDRESS 4";P$
110 INPUT "DATE";D$
120 INPUT "TIME";E$
130 INPUT "FREQUENCY";F$
140 INPUT "SIG. STRENGTH";G$
150 INPUT "ANTENNA";H$
160 REM *** THREE LINES FOR MESSAGE
170 INPUT "REMARKS";J$
180 INPUT "REM.2";K$
190 INPUT "REM.3";L$
200 INPUT "ARE ALL DETAILS CORRECT -- Y/N";ANS$
210 IF ANS$ = "N" GOTO 50
220 REM *** SET UP PRINTER CODES
230 SO$=CHR$(14):SI$=CHR$(15):DC2$=CHR$(18):LF$=CHR$(10):ESC$=CHR$(27)
240 LPRINT CHR$(27);"8"
250 LPRINT SO$; TAB(3)"VK7RN"
260 LPRINT
270 LPRINT SI$;"RON CHURCHER, P.O.BOX 277"
280 LPRINT "DEVONPORT, TASMANIA. 7310"
290 LPRINT
300 LPRINT "To radio "A$;"/";B$
310 LPRINT "Confirming QSO on ";F$;" M/H"
320 LPRINT "Date "D$;"       ";"Time  ";E$;" UTC"
330 LPRINT "Your signal was ";G$ ;DC2$;TAB(37);M$;SI$
340 LPRINT "Txcr is Icom 720 + IC2KL amp. ";DC2$; TAB(41);N$
350 LPRINT SI$;"Antenna is ";N$;DC2$; TAB(36);O$
360 LPRINT TAB(27);P$;SI$
370 REM *** STANDARD FORMAT LINE WITH CONTACT'S NAME
380 LPRINT "Thanks ";B$;" for the chat"
390 LPRINT J$
400 LPRINT K$
410 LPRINT L$;DC2$
420 LPRINT LF$
430 INPUT "ALL OK? - DO YOU WANT TO RETYPE -  Y/N)";ANS$
440 IF ANS$ = "Y" GOTO 200
450 END
```

EQUIPMENT REVIEW.

THE KENWOOD TH-75A DUAL BAND HANDHELD TRANSCEIVER

RON FISHER VK3OM
24 SUGARLOAF ROAD, BEACONSFIELD UPPER 3808

As I have pointed out in reviews over the last few years, handheld transceivers seem to show more advanced design features than mobile or fixed station equipment. The new KENWOOD TH-75A seems again to support this view.

The TH-75A is the latest dual band FM transceiver that covers the 2 metre and 70 cm bands. Like most of the current dual-band handhelds, the Kenwood is quite a deal larger and heavier than many of the midget single-banders that are around these days. I guess it's a matter of deciding whether you need the extra facilities or not, and if you do, whether the extra size and weight is acceptable.

Transmitter power output up to five watts is available, depending on the battery pack selected, or as an alternative, the rig can be powered from a 12 Volt car battery system. As with many dual-band transceivers, full duplex operation is possible; that is, you can transmit and receive simultaneously, but of course on separate bands. I was unable to actually check this feature out, but it seems that an ear piece or headphone set would be required at each end. I wonder if this facility is often or every used?

The four optional battery packs are as follows: PB-5 has an output of 7.2 Volts at 200 mAh. The PB-6 also has an output of 7.2 Volts, but at an increased capacity of 600 mAh. The BP-7 is again 7.2 Volts, but gives the highest capacity of 1100 mAh. All of these produce the same transmitter power output. If higher output is required, then the PB-8 delivers 12 volts at 600 mAh. As with all handhelds, the battery life depends on how long you talk, as, even at the lowest voltage, the current drain exceeds one amp.

Charging system with Battery connected to Adaptor

Let's look at some of the facilities offered on the TH-75A. In addition to the full duplex operation mentioned above, it is also possible to listen on both bands at the same time. Two squelch controls, one for VHF and one for UHF are provided. Only one audio volume control is available but a balance control allows the relative audio output on each band to be set. Although dual receive is possible, dual transmit is not. You can only transmit on one band at a time.

A total of twenty memory channels, ten for VHF and ten for UHF, are provided. These can be programmed with information on frequency, repeater splits, tone frequency data and call channel information. Frequency selection is via either the front panel key pad, or from the top panel rotary "tuning" control. This same control is also used to select memories when in that mode.

The liquid crystal frequency and status display is reasonably large and has good clarity. In addition to frequency, there are something like twenty other status indicators. You will need both a good memory and good eye sight to work them all out. The "S" meter is a vertical bar graph set between the main and sub-frequency displays, and indicates battery voltage while in transmit mode. The instruction book has some helpful charts to tell you what to expect from this when using he various battery packs.

Illumination is provided for the display but not the key board. This is actuated by a button near the PTT button on the side of the transceiver. It's not too easy to find.

A tone squelch and CTCSS module is available as an option and was not fitted to our review transceiver. I feel that, if manufacturers expect this to become popular, then it should be fitted as a standard feature.

Close-up of display and key pad

The TH-75A On The Air

I am going to start this section with a grouch, which applies not only to the TH-75A, but to most of the Kenwood range of handhelds. The battery must be removed from the transceiver before it can be recharged. In addition to this, there is no indication that the recharging process is actually going on. No LED indication, just nothing. I know that the chances of putting the charge adaptor on to the battery incorrectly are remote, but it can happen. You might even forget to turn on the AC. How about it Kenwood? One little red LED would not cost much. I must admit to using my handheld (not Kenwood) on receive with the charger connected. I know it's not recommended, but it works fine and keeps you listening.

To balance this though, there are lots of very good points about the TH-75A. The transmitted audio quality was rated as very good, with just the right amount of deviation. I would like to try the exter-

Complete view of TH-75A

nal speaker microphone some time, but would expect it to be good. Received audio quality was rated as adequate. Small speakers in small boxes always sound like small speakers in small boxes. As mentioned earlier, an external speaker would be a decided advantage for mobile use, or for just plain better quality for home station use.

On of the more tricky points of using the transceiver is the PTT switch. There are three of them! Not all PTT switches of course, but three push button switches one above the other. The top one is called the monitor switch. It opens the squelch to check if any weak signals are on the frequency. The second button down is the display light switch, which lights the display only and not very well at that. And the third button is the PTT. Believe me, it's easy to push the wrong one. Below all of these, and well out of the way, is the battery lock button. The external DC input socket is on the other side Both memory and programmed scanning are available, as is a priority channel function. I have always preferred the Kenwood priority channel alert system to other makes Your favourite channel is monitored every five seconds and if it becomes active, the transceiver beeps at you. Select channel one (the priority channel) and there you are. Another nice feature is the auto band-change. This comes into effect when a station comes up on the frequency being monitored on the sub-band. Press the PTT within three seconds and you are on the sub-band. You won't miss anything while using the TH-75A. There are more chirps from this rig than from a cage full of birds.

The TH-75A On Test

All of these tests were conducted using an external regulated power supply set to simulate the various battery voltages.

Receiver current drain; Power supply, 7.2 Volts

With no receiver audio output; 105 mA

With full receiver output on one band only; 200 mA

With full receiver output on two bands; 300 mA

With battery save function in operation; 20/30 mA

Kenwood kindly supplied power output and current drain figures as measured in their lab using professional test equipment.

At 146 MHz

7.0V	2.4 Watts output	0.98 Amps
9.0V	3.8 Watts output	1.24 Amps
12.0V	6.0 Watts output	1.42 Amps
13.8V	6.0 Watts output	1.43 Amps

At 430 MHz

7.0V	1.9 Watts output	1.17 Amps
9.0V	4.0 Watts output	1.36 Amps
12.0V	4.6 Watts output	1.42 Amps
13.8V	6.0 Watts output	1.43 Amps

Low power selection produced an output of 0.4 Watts on both bands at 7.2 volts and strangely a slightly lower 0.35 Watts at 12 Volts.

The receiver audio power output was measured next. The signal generator was set for 1 kHz modulation with 3 kHz deviation. With an 8 Ohm load, a maximum power output of 520 milliwatts was produced. With a 4 Ohm load, the output was slightly higher at 625 milliwatts. The 10% distortion level was at 400 milliwatts and this dropped to 2% at 200 milliwatts.

This output, fed to an effective external speaker, produced a reasonable acoustic level. The internal speaker was able to produce a good level for normal locations, but could be lacking in noisy situations.

Receiver sensitivity was excellent, with a 12 dB signal to noise ratio at 0.15 µV input on both bands.

The squelch opened at well below 0.1µV again an excellent figure. The "S" meter, as usual, proved to be of limited use, reaching full scale at just above 1µV input. There are twelve segments of bar graph for the S meter, and no calibration points are provided. The receiver proved to be very free from spurious responses on both bands. I have a police UHF repeater operating in my back yard and no hint of its operation was noted.

The Instruction Book

There is no doubt about it, the TH-75A is a complicated machine. Basic operation is fairly straight forward, but if you want to make full use of the facilities that are offered, then you will need to study the book carefully. In this regard the instruction is excellent. As is unfortunately the normal situation these days, very little technical information is included. A full circuit diagram is provided, but you might be hard pressed to find the adjustments for mic gain or deviation.

Conclusion

If you are in the market for a dual-band handheld, the TH-75A must be a strong contender As I have pointed out before, dual-band rigs of this type are bigger and heavier than their single-band cousins. Also the slightly higher output power capability must be paid for by high battery consumption., If you intend to talk a lot, a spare battery would be essential. Kenwood offers a wide range of accessories to complement the TH-75A. Here are a few to consider: three battery chargers — three optional batteries (in addition to the one supplied with the rig) — a battery case to take either AA style manganese or alkaline cells (this presumably might also take AA size nicad batteries) — a speaker microphone unit — and the TSU-6 tone squelch unit. A selection of carrying cases to fit the transceiver, with the varying size batteries, DC connecting cables and telescopic antennas, is available. The current price of the TH-75A is $900. Our review transceiver was supplied by Kenwood Electronics Australia Pty Ltd to whom all enquiries should be addressed.

Kenwood Comment

Regarding the BC9 wall charger "The reviewer is only commenting on the BC-9 wall charger which is supplied with the TH-75A. If he had the BC-11 rapid charger or the BC-10 compact charger, he would get the results and features he is complaining the BC-9 lacks". **ar**

AMATEUR RADIO LONG VANUATU TEDEI

By Jim Linton VK3PC

The tiny Pacific nation of Vanuatu consists of 80 islands stretching some 800 kms, and this month celebrates its 10th anniversary of gaining independence

It had been a condominium jointly run by England and France. The influence of those two colonising nations is still evident, but it adds to the country's charm. Under the condominium it was called New Hebrides. The name Vanuatu translated means "Our Land". The title of this article includes two words from the Bislama language, the local form of Pidgin English. Interpreted it simply means AMATEUR RADIO IN VANUATU TODAY.

This unspoilt paradise has the character of a struggling third world country, but tourists and locals alike favour it being saved from heavy commercialisation. Holiday-makers seeking a spot to give them an immediate sense of relaxation, exposure to a different culture, and plenty of adventure, will find Vanuatu meets all those expectations. One of the first things to strike a tourist is the genuine friendliness of the indigenous Melanesian Ni-Vanuatu.

The first YL Ni-Vanuatu to obtain an amateur licence is 24 year old Touasi Taiwia YJ8NTT. Recently qualified for her Novice Licence, Touasi features on the cover of this month's Amateur Radio magazine, along with a workmate Tim Williams, who is yet to obtain his licence.

The amateur radio community consists of about 20 licensees, with about six of them really active. Keen DXpeditioner is Marek Bladowski YJ8M, who has operated from YJ1 at both the Torres Group, and Shepherd Group the northern most islands The amateur radio scene is centred on Efate Island, which includes the capital of Port Vila. Apart from Touasi, the radio amateurs are expatriates now resident in Vanuatu.

The Vanuatu Amateur Radio Society (VARS) goes out of its way to help visiting radio amateurs to make their stay as pleasant and enjoyable as possible. Up to 30 radio amateurs travel to the idyllic Pacific spot each year, and most often take out a YJ0 callsign issued as a visitor's licence. For the CQ WW contest in October in recent years, Pekka OH1RY has been a higher scorer, signing YJ0RY.

Radio amateurs from Britain, New Zealand, USA, Canada, West Germany, France, Fiji, Papua New Guinea, The Solomons and quite a few other countries can, with adequate proof of their qualification, be granted a visitor's licence. Currently there's no reciprocal licence agreement between Vanuatu and Australia, but that is likely to change soon. Vanuatu is a party to International Telecommunications Union conventions, and has adopted Australian standards for licensing.

Although the standard is the same, the old essay-style theory question papers are being used. An offer has been made to help Vanuatu convert its written examination papers to the multi-choice question style now used in Australia. Examination devolvement has existed in Vanuatu for six years. VARS appoints an examiner for the Morse examinations, and invigilates the theory and regulations examinations. Norman Shackley YJ8JS of VARS said: "Australia had offered reciprocal licensing years ago, but it was never taken up because of the bureaucracy in a new country like Vanuatu finding its way. It's simply the problem of drafting a letter and it being left on the bottom of the pile." He said this was not meant as a criticism, but just a recognition of the enormous difficulties faced by a country on gaining independence.

The issue was revived last August, when the author of this article visited the country, and the Vanuatu Amateur Radio Society immediately took the matter up with authorities. Telecom Vanuatu has since written a letter to the Australian Department of Transport and Communications seeking a reciprocal licensing agreement. The WIA fully supports the move, and has actively pursued it with DOTC. At the time this article went to print, the agreement was in the hands of DOTC for ultimate approval.

Norman YJ8JS took up the hobby of amateur radio while on secondment to Vanuatu from the public service in Britain. He successfully interested and encouraged Touasi, one of his staff, to study for her own amateur licence.

Touasi passed her Novice telegraphy tests in June 1989, and continued studies to take out a Novice callsign.

Norman said Ni-Vanuatu generally experienced difficulties when they needed to study at home. "Simple things like not having electricity in their homes. Study after 6 pm when the sun goes down is just not possible," he said. His experience with the problems was gained while being a high ranking official in the Customs Service at Port Villa.

Norman said the difficulties came to light after staff needing to improve their knowledge and skill level were unable to make the progress expected. He has since returned to Britain after being on secondment from the British Department of Customs and Excise. Language is another problem for Ni-Vanuatu to grasp concepts such as inductance, capacitance and reactance, with all student material written in English. "It's asking the impossible to expect someone to learn by themselves through reading a foreign language textbook about such concepts," Norman said. A solution could be videotapes of basic electronic concepts to help get them across, he said. Hopefully these can be supplied to VARS from Australia or elsewhere They would certainly help Touasi spark interest in our hobby among other Ni Vanuatu. Listen to her and the other VARS members operating YJ10IND, a commemorative station being set up in Port Vila for the 10th anniversary celebration on the last weekend this month. **ar**

CONTESTS

Calendar

August 11-12
WIA 1990 Remembrance Day Contest
October 6-7
VK/ZL Oceania DX Contest, SSB Section
October 13-14
VK/ZL Oceania DX Contest, CW Section

The rules for the RD contest of 1990 are almost identical to those of '87, which originally came into use after some years of fact finding, juggling of statistics, help from academics, studying of propagation, etc, etc.

A great effort went into discovering that to formulate a set of rules for the RD contest that would be equitable for all divisions was nearly impossible. So it was back to basics

What was wanted? Simply, a sporting chance for all divisions to win the trophy. Immediately that brought out a few salient points:

1. A simple one point per contact; no more juggling of a scoring table to make divisions "equal".
2. Rule out the propagation problem; some bands do favour various paths during the contests.
3. Operation of club stations and, in some cases, the various callsigns assigned to a single operator.

And bring in a weighting factor! And, that's the key. Allowing all divisions to participate as they have done in the past, but should a division "lift its game", this would reward it with a great chance to win the friendly contest. But, to keep winning, it must keep on improving its score.

After the new rules were first used by VK1BR, and then the refined version by Ian VK5QX in 1987, results showed that they worked. In successive years, divisions generally agreed that at last a workable compromise had been achieved. Criticism dropped almost right away, but then some modifications were made to later contests. However, these have been shown not to have been in the best interests of the contest.

Minor changes were made, such as points per contact for some modes, operation of multi callsigns, club stations and number of operators etc. These slowly eroded away the original and refined rules of 1987 until they were "out of kilter" with the original intentions.

To explain further — 2, 3, or 6 hours between repeat contact on VHF? Just where does the repeat contact interval turn the contest into a VHF activity only? Would this distract from the HF component of the contest?

What if propagation is woeful, wouldn't VHF activity keep the contest alive?

Eastern seaboard HF sometimes doesn't seem to reach the Western seaboard - VHF then maintains activity, and should the HF bands open, operators will not have given up altogether, and are around to keep checks on these occurrences. Amateur population centres "lose" 2 hour intervals on VHF and this shifts operation of HF to VHF in many areas. Does it? Is this so wrong?

So long as there is participation, then the basic intentions have been achieved.

Signal report - why? It serves no purpose in the RD contest. If the serial number and callsign is recorded, the ubiquitous 5 and 9 serves no purpose. Should the operator wish to send or receive it, nothing prevents the exchange. (Having checked thousands and thousands of contacts as an ex FCM, almost without exception the exchange has been 5 and 9.)

Rule 7, all operators must sign the declaration, why? What does this achieve, that a callsign was used by one, two or even ten operators? It makes no difference in the contest as no multi transmissions are allowed.

As the perpetuator of the overall system of rules way back in early eighties, let me assure those who query the system, that it was working as intended before the modifications of later years.

Having only the CW and phone sections and no "open" section removes a strange way of contest operating and scoring. CW operators take pride in stating they get through when conditions are rough. Providing additional points for one mode because it takes more effort to make a contact, makes the special formula devised to make the competition between divisions off balance by such bias. The valid log requirement of 25 contacts over the previous 10, is an effort to assist in overcoming a problem of certificate issue, and should cause no distress to any RD operator

Neil Penfold VK6NE Acting Co-ordinator

1990 Remembrance Day Contest — Rules

This contest is held to commemorate those amateurs who died during WWII, and is designed to encourage friendly participation between all amateurs and to help in the improvement of operating skills of all participants.

This contest is held annually during the weekend nearest the 15th August, the date on which hostilities ceased in the south-west Pacific area.

The contest is preceded by a short opening address by a notable personality, which is transmitted on various WIA frequencies during the 15 minutes immediately prior to the commencement time of the contest. As part of this opening ceremony, a Roll Call of the names of those amateurs who paid the Supreme Sacrifice, is read.

A perpetual trophy is awarded annually for competition between Divisions of the Wireless Institute of Australia. It is inscribed with the names of those Australian amateurs who made the Supreme Sacrifice and so perpetuate their memory throughout amateur radio in Australia.

The name of the winning Division each year is also inscribed on the trophy and in addition, the winning Division will receive a suitable certificate. The winning Division also holds the trophy for the next 12 months, after it is presented at the Annual Federal Convention

Objectives

Amateurs in each VK call area will endeavour to contact other amateurs.

* in other VK call areas, P2 and ZL on bands 1.8 to 30 MHz, except the 10, 18 and 24 MHz bands.

* in any VK call area, including their own, P2 and ZL on bands above 52 MHz, and as indicated in Rule 5.

Contest Period

0800 UTC 11th August to 0759 UTC 12th August 1990.

All Australian amateur stations are requested, as a mark of respect, to observe 15 minutes silence prior to the commencement of the contest. It is during this period that the Opening Ceremony Broadcast, referred to above, will take place.

Rules

1. There will be two contest categories
(a) High Frequency (HF) — for operation on bands below the 52 MHz band.
(b) Very High Frequency (VHF) — for operation on bands from 52 MHz and up;wards
2. In each category there will be three sections
(a) Transmitting Phone
(b) Transmitting CW
(c) Receiving
Modes applicable to each section are as follows
(a) AM, FM, SSB, TV
(b) CW, RTTY
(c) Receive (a) or (b)
3. All Australian amateurs (VK callsign) may enter the contest, whether their stations are fixed, portable, or mobile. Members and non-members of the Wireless Institute of Australia are eligible for awards.
4. Cross Mode Operation is permitted. Cross Band Operation is not permitted excepting via a satellite repeater
5. Scoring Contacts
(a) All contacts score one point.
(b) On all bands a station in another call area may be contacted once on each band using each mode. That is you may work the same station on each band on Phone, CW, RTTY and TV

(c) On the bands 52 MHz and above, the same station in any call area may be worked using any of the modes listed at intervals of not less than two hours since the previous same band/mode contact. However, the same station may be contacted repeatedly via satellite not more than once by each mode on each orbit.

(d) Acceptable logs for all entries must show a minimum of at least 10 valid contacts.

6 Multi-Operator Stations Are Not Permitted (except as in Rule 7), although log keepers are allowed. Only the licensed operator is allowed to make a contact under his/her own callsign. Should two or more operators wish to operate any particular station each will be considered as a contestant and must submit a log under the individual callsign which applies to that operator.

7. Club Stations may be operated by more than one operator, but only one operator may operate at any time; ie no multi-transmission

8 Ciphers — for a contact to be valid, serial numbers must be exchanged between stations making the contact. The serial number will comprise three figures commencing 001 for the first contact and incremented by one for each successive contact. Should the serial number 999 be reached, the serial number will revert again to 001

9. Terrestrial Repeaters — contacts via terrestrial repeaters are not permitted for scoring purposes. Contacts may be arranged through a repeater and if successful on another frequency will count for scoring purposes. The practice of operating on repeater frequencies in simplex mode is not permitted

10. Portable Operation — Log scores of operators located outside their allocated call district will be credited to that call area in which the operation takes place; eg VK5XY/2 — this score will be added to the VK2 Division scores

11. Entries — a log of all contacts must be submitted. This should be in the format as shown in the example and must be on one side of the paper only

A Front Sheet must also be included showing the following information in this order

Category (HF or VHF). Section (Phone, CW or Receiving) Call Sign, Name, Address, Total Score, Page Tally

Declaration. "I hereby certify that I have operated in accordance with the rules and spirit of the contest."

Signed Date·

Logs are to be forwarded to the RD Contest Co-ordinator, 2 Moss Crt, Kingsley 6026 WA. Envelope to be endorsed Remembrance Day Contest on the Front outside. Entries must be forwarded in time to reach the RDCC, by 28 September 1990. Any entries received later than this day may be used as Check Logs only.

12. Disqualification — Any station observed during the contest as constantly departing from the generally accepted codes of operating ethics may be disqualified.

13. Awards — certificates will be issued in accordance with the Guidelines for Certificate Issue Remembrance Day Contest

Determination Of Winning Division

Scores by stations in VK0 are added to VK7.

Scores by VK9 stations are added to the mainland call area which is geographically nearest.

Scores claimed by P2 and ZL stations are not included in the scores of any VK call area.

The formula to be applied to determine the winning WIA Division is as follows:

Total Contacts per Division/Total Licenses per Division times the Weighting Factor.

The Weighting Factor is calculated such that should each WIA Division perform equally as well in 1990 as in the past four years (averaged) the result would be a seven-way dead-heat.

Consequently, the most improved Division will win the trophy and also earn a revised and lower weighting factor for the following year.

Receiving Section Rules

1. This section is open to all shortwave listeners in Australia, Papua New Guinea and New Zealand No active transmitting station may enter this section.
2. Contest Times and logging of stations on each band are as for transmitting.
3. Logs should be set out as per the example. It is not permissible to log a station calling CQ. The detail shown in the example must be recorded.
4 Scoring will be as per Rule 5 for transmitting with other aspects of that same rule also applying.
5. Club Stations may enter this section.

Awards For SWLs

Certificates will be awarded to the highest scorer in each call area. Further certificates may be issued at the discretion of the Contest Manager.

Dupe Sheets

Where stations make a reasonable number of contacts it is most helpful that they use some form of checking system to ensure that they do not have invalid duplicate contacts.

Example Transmitting Log

Remembrance Day Contest 1990

Call Sign: VK1XXX **Category:**HF
Section: (1) Transmitting Phone

Date Time (UTC)	Band (MHz)	Mode	Call	No Snt	No Rcd	PTS
16.8.86						
0800	14	SSB	VK2QQ	001	002	1
0802	"	"	VK6LL	002	001	1
08 05	"	"	VK5ANW	003	011	1
0807	"	"	ZL2AGQ	004	003	1
0809	"	"	VK4XX	005	007	1
Page 1 of 10					Page total 40	

Example Front Sheet

Remembrance Day Contest 1990
Category: HF
Section: (a) Transmitting Phone
Callsign: VK1XXX Name Joe Brown
Address: PO Box 123, Farm Orchard, ACT, 2611
Total Score: 1498 points

Page Tally	10 Sheets	1498 points
	Page	Score
	1	40
	2	39 ·
	3	40
	-	-
	-	-
	Pages 10	Total 1498

Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the contest.
Signed: J Brown **Date:** 20.8.90

Example Receiving Log

Remembrance Day Contest
Name/SWL NO: L30371. Category: HF
Section· (c) Receiving Phone

Date Time (UTC)	Band (MHz)	Mode	Stn Calling	Stn Called	No Snt	No RCD	Pts
16.8.86							
0800	14	SSB	VK1XXX	VK2QQ	001	002	1
0802	"	"	VK1XXX	VK6LL	002	001	1
0805	"	"	VK5ANW	VK1XXX	011	003	1
0807	"	"	ZL2AGQ	VK1XXX	003	004	1
0809	"	"	VK7AL	VK2PS	007	010	1
Page 1 of 7					Page Total 40		

The 14th West Australian Annual 3.5 MHz CW & SSB Contests Transmitting & Receiving Rules

1 Duration CW Sunday 29th July. SSB Sunday 16th September between the hours of 1030Z and 1330 Z time ie 3 operating hours for each contest.

2 Frequencies All contacts to be made in the 3.5/3.7 MHz band using frequency allocation applicable to your licence conditions.

3 Calling; Stations will call CQ WAA using the three times three technique, infringe-

ment of this rule by the use of long CQ calls may entail disqualification, as will prearranging of a QSO

4 Scoring: Points for contacts are as follows -

Within Western Australia	5 points per contact		
WA to all Mainland Eastern States	2	"	"
WA to VK7	4	"	"
WA to VK0 & Overseas	8	"	"

3 points per contact with WA stations only.

5 Multipliers: A multiplier of 2 per WA Shire worked will apply to the final score. WA Stations north of the 26th Parallel only; an additional multiplier of 1.3 will apply per contact confirmed with stations south of the 26th Parallel

6 Contacts: Stations may be worked twice on each night ie once between 1030Z to 1300Z and again between 1300Z to 1330Z these contacts will count for points. Each time the contact for WA stations will take the form of an exchange of 5 characters comprising RST/RS and Shire Letters. eg a station in NORTHAM sends 579NM or if in HARVEY 579HY this helps towards the worked all shires award
Eastern States and Overseas stations will send RST/RS plus a running number starting at 001

7 Logs: Contest logs to be set out on one side of a Quarto or Foolscap sheet with columns headed as below.

Date: Call: Operator:

Time Z	Call WKD	RST Out	RST In	Shire Letters	Shire Multiplier	Points Claimed

Column 7 to be totalled at the foot of each page and the running totals brought forward. The last page to contain the following summary: Total number points scored, Input power, Equipment and Antennas used, along with comments on the contest in general SWL participants score as above using the outgoing TX score.

All logs to be addressed to the WAA Contest Committee, 42 Kennedy Street, Melville, WA 6156 and posted so as to reach us not later than 5th October for both contests. The results for all contests will be published in the December issue of AR.

Shire Identification Letters

1	Albany Town	AT	11	Bridgetown/ Greenbushes	BG
2	Albany	AL	12	Brookton	BK
3	Armadale	AK	13	Broome	BE
4	Augusta/ Margaret River	AM	14	Broomehill	BH
5	Bassendean	BA	15	Belmont	BL
6	Bayswater	BW	16	Bruce Rock	BR
7	Beverley	BV	17	Bunbury	BY
8	Boddington	BO	18	Busselton	BN
9	Boulder	BD	19	Canning	CA
10	Boyup Brook	BB	20	Capel	CL
21	Carnamah	CH	22	Carnarvon	CN
23	Chapman Valley	CV	24	Chittering	CI
25	Claremont	CT	26	Cockburn	CR
27	Collie	CE	28	Coolgardie	CG
29	Coorow	CW	30	Corrigin	CS
31	Cottesloe	CO	32	Cranbrook	CK
33	Cuballing	CB	34	Cue	CU
35	Cunerdin	CD	36	Dalwallinu	DU
37	Dandaragan	DN	38	Dardanup	DP
39	Denmark	DK	40	Donnybrook/ Balingup	DB
41	Dowerin	DR	42	Dumbleyung	DG
43	Dundas	DS	44	East Fremantle	EF
45	East Pilbara	EP	46	Esperance	ES
47	Exmouth	EH	48	Fremantle	FM
49	Gingin	GG	50	Gnowangerup	GP
51	Geraldton	GN	52	Goomalling	GM
53	Gosnells	GS		Greenough	GR
55	Halls Creek	HC		Harvey	HY
57	Irwin	IN	58	Kalamunda	KA
59	Kalgoorlie	KL	60	Katanning	KG
61	Kellerberrin	BN	62	Kent	KT
63	Kojonup	KP	64	Kondinin	KD
65	Koorda	KO	66	Kulin	KU
67	Kwinana	KW	68	Lake Grace	LG
69	Laverton	LV	70	Leonora	LA
71	Mandurah	MB	72	Manjimup	MP
73	Meekatharra	MK	74	Melville	MV
75	Menzies	MZ	76	Merredin	MD
77	Mingenew	MW	78	Moora	MA
79	Morowa	MR	80	Mosman	MS
81	Mukinbudin	MU	82	Mullewa	ME
83	Mundaring	MG	84	Murchison	MH
85	Murray	MY	86	Mt Magnet	MM
87	Mt. Marshall	ML	88	Nannup	NP
89	Narembeen	NN	90	Narrogin	NG
91	Narrogin Town	NT	92	Nedlands	NL
93	Northam	NM	94	Northam Town	NO
95	Northampton	NH	96	Nungadin	NG
97	Peppermint Grove	PG	98	Perenjori	PJ
99	Perth	PH	100	Pingelly	PY
101	Plantagenet	PT	102	Port Hedland	PD
103	Quairading	QG	104	Ravensthorpe	RT
105	Rockingham	RM	106	Roebourne	RB
107	Sandstone	SS	108	Serpentine/ Jarrahdale	SJ
109	Shark Bay	SB	110	South Perth	SP
111	Stirling	ST	112	Subiaco	SU
113	Swan	SW	114	Tambellup	TP
115	Tammin	TM	116	Three Springs	TS
117	Toodyay	TY	118	Trayning	TG
119	Upper Gascoyne	UG	120	Victoria Plains	VP
121	Wagin	WN	122	Wandering	WD
123	Wanneroo	WO	124	Waroona	WR
125	West Arthur	WA	126	Westonia	WS
127	West Pilbara	WP	128	Wickepin	WI
129	Wiluna	WU	130	Williams	WL
131	Wongan/ Ballidu	WB	132	Woodanilling	WG
133	Wyalkatchem	WY	134	Wyndham East Kimberley	WE
135	West Kimberley	WE	136	Yalgoo	YO
137	Yilgarn	YN	138	York	YK

WPX Contest From BY1PK

Wally Watkins VK4DO PO Box 262 Airlie Beach 4802

Being interested in contest working for many years and often having worked stations on DX peditions, I had always dreamt of being in that position. Dreams do come true.

In conjunction with a lecture tour for amateur radio clubs in Beijing and Nanjing in China, it was possible to sandwich between cities the weekend of the 1990 CQ WPX contest.

Negotiations in January 1989 with Tong at BY1PK, during my visit to Beijing, had led to an invitation to operate in the 1990 WPX from his station. Final arrangements were made during the year.

My old friend, Huang, had retired from the Chinese Radio Sports Association, and the new interpreter was Meng Chao, BZ1FB. It was decided that we would both operate BY1PK in the multi, single transmitter section of the contest. The arrangement was for me to leave my hotel and stay at the CRSA work unit for the weekend as it was in the same building as BY1PK.

Saturday morning arrived. Meng was to meet me at the "Hao Yuan" Hotel at 0730 and go with me to BY1PK to start operating at 0800. However Meng was delayed and did not arrive until 0800. So it was a fast trip, each on a bicycle through peak traffic, complete with my suitcase and bag.

We got on air at 0819 and soon settled down to contest conditions. On Saturday 28 MHz and 21 MHz were used during daylight and 14 MHz was used at night towards North America. Sunday was a repeat performance except for a short stint on 7 MHz and 3.5 MHz in the evening.

In 34 hours of operating 2368 contacts were made giving 585 prefixes.

It should be noted that China does not permit contacts with amateur stations in South Korea, Israel or South Africa. It was difficult to explain to a persistent 4x4 that contact was not allowed. JY1 called me and after swapping numbers he asked me for the actual signal report, which was S7 not the usual 59 for contests.

On my return to Australia the work really began with the checking and scoring of the log. Just enough time was left to meet the 10 May deadline.

No prizes are expected, however the combination of being a "wanted" prefix, first class equipment and antennas, was a great experience.

My thanks to fellow operator Meng Chao BZ1FB, station managers Tong and Yu for keeping fresh log sheets at the ready as well as coffee and food and not the least the friendly cooperation of the Chinese Radio Sports Association during the weekend.

ar

1989 VK-ZL Oceania Contest
VK And ZL CW results

F Beech VK7BC
1989 Manager

VK-CW		160	80	40	20	15	10	Mult	Total
VK2DXI	#15m	30	560	113	754	372	471	861,459	
VK2APK		120	100	430	188	544	276	459	761,022
VK2BBQ				345	154	370	246	359	400,285
VK2DID			90		77	256	106	194	102,626
VK2PS	*160m	140	90	80	25	88	84	123	62,361
VK2CWS							140	58	8,120
VK2AIC					2	50	38	42	3,780
VK3XB	#	20	10		335	194	104	293	194,259
VK3MJ		40	20		88	170	66	161	61,824
VK3MR					347			167	57,949
VK3VT					70	44	8	70	8,540
VK3KS		20	10		1			3	93
VK4XA	#*10m						1054	265	27,930
VK4TT	*20m				468			218	102,024
VK4OD						110	34	54	7,776
VK4XW			130	20		12	4	21	3,486
VK5ADX	#40m	80	110	750	121	332	76	325	477,425
VK5AGX			90	225	210	76	104	249	175,545
VK8AV/4					72	152	58	282	40,890
ZL3GQ	#*80		240	645	276	602	616	626	1,489,254
ZM1AIZ		120	150	670	70	192	110	286	375,232
ZL1HV				175	87	136	160	209	117,040
ZL2AGY							510	161	82,110
ZL3AGI					189			128	24,192
ZL1AIH			310					25	7,750

#Call area cert, *top band score.

VK and ZL Phone Results

VK-Phone		160	80	40	20	15	10	Mult	Total
VK1PJ	#		470	10	71	466	932	477	929,673
VK1ZL			60	5	54	134	98	134	47,034
VK1LF			120			80		43	8,600
VK2APK	#*160m	140	280		178	854	134	390	618,540
VK2DXI			130	50	61	896	160	318	412,446
VK2KM						988		261	257,868
VK2PWS						856		187	160,072
VK2BJL					129	42	326	246	122,262
VK2BAM			280		110	22	162	155	88,970
VK2PS		60	200		128	20	60	157	73,476
VK2FT							342	86	29,412
VK2CWG	* 80m		570					41	23,370
VK2CJH					16	4	2	15	330
VK2PKW	used as check log.								
VK3AJU	S Key.		150		54	124	8	100	33,600
VK3DNC					4	70	42	54	6,264
VK4OH	#		260		428	422	376	506	751,916
VK4LT	*10m		190		8	404	1118	415	713,800
VK4KRP							1330	289	384,370
VK4NEF						62	468	157	83,210
VK4PJ						322		105	33,810
VK4OD						94	78	73	12,556
VK5HB	#		130	40	147	358	144	310	253,890
VK5ADX			200		161	262	102	247	179,075
VK5QX	*20m				510			271	138,210
VK5NVW							470	128	60,160
VK5DON		20	60		35	96	70	101	28,381
VK8XX	#*15m				24	1574	504	438	920,676
VK8BE							28	13	364
ZL3GQ	#*40m		100	125	248	908	594	592	1,169,200
ZL1AAS		100	170		206	168	872	459	695,844
ZL1BVK			270		134	902	64	332	454,840
ZM1IM				10	26	330	304	186	124,620
ZL2AH						314	86	132	52,800
ZL3TX		100	300	10		82	32	76	39,824
ZM4GB			230		44	74		77	26,796
ZL2GJ			240		14	62	6	60	19,320
ZL1AGO							112	50	5,600

#Call area certificate winner *Top band score in call area

Results for the overseas stations will be published next month Comments from overseas stations suggest that activity from our call areas will need to be increased if the contest is to grow

The 1990 contest will be run by NZART and adjudicated by John Litten ZL1AAS 146 Sandspit Road, Howick New Zealand Please give the contest your support this coming October

The winning stations will receive certificates in the near future

1990 dates are; Phone Oct 6-7th CW Oct 13-14th.

Good contesting to you all,

VK7BC

ar

A Front End Tuner from the VLF-LF Receiver

Continued from page 11

America. This club also distributes a magazine called "Lowdown" Perhaps, in Australia, we should be pressing for an amateur radio section of the bands at these low frequencies Judging by the lack of signals around 40 to 100 kHz, this spectrum does not appear to be greatly utilised

To finalise the discussion, we have described a front end tuner which improves the performance of the VLF-LF receiver immensely. In fact, it would be a useful addition to place in front of any receiver which happens to tune these bands. With separate sharp RF tuning, Q switch and possibly aerial tuning, the receiver is a little complicated to adjust, but once mastered, the results are certainly worth while. One further control to be watched is the receiver RF gain. With all the extra gain in the front end tuned circuits, it is very easy to lock up the receiver with too much signal level.

One might ask why the tuning could not be simplified by ganging the front end tuned circuits with the receiver oscillator tuning. To make a highly selective tuned circuit at 10 to 30 kHz accurately track, at 455 kHz difference, with the oscillator circuit at around 465 to 485 kHz, seems a highly difficult, if not impossible task. It seems that with the superheterodyne we must either trim the front end manually or tolerate the inferior performance of broader tuning. ar

AWARDS

PHILL HARDSTAFF VK3JFE
FEDERAL AWARDS MANAGER

WIA Awards Program

Applications and inquiries for Federal WIA awards should be addressed to Phill Hardstaff, Federal Awards Manager, c/o WIA, PO Box 300, South Caulfield, Vic, 3162. A SASE when making an inquiry would be appreciated

New Awards Manager

With the formalities out of the way I would like to introduce myself. Although I would not class myself as a fanatical award hunter I have been known to chase the odd award or two. I have held the callsign of VK3XGK since around 1984 but was always an avid SWL before that. In 1986 I left Telecom, with which I had been working for 12 years, and took up employment with the South Pacific Commission in Noumea, New Caledonia, for three years. From there I was FK1TS for two years, operating mostly on six metres. My work took me around the Pacific a lot and I managed to operate at one time or another under the following calls: A35PJ, 5W1HF, 3D2TS, ZK1XT — to mention a few. I returned from New Caledonia very reluctantly last year, and now manage a national repair centre for a large computer company. I also got out the Morse key and managed 5WPM and hope to get the other five really soon. I have decided to settle here again for a while, but would love to go back and live in the Pacific somewhere, some day.

Awards Program

It is anticipated that, by the time you read this, the current backlog of awards will have been tidied up and all outstanding awards mailed out. The one area that will take a little longer to iron out is the DXCC records. I would like to get all this information on computer and in a data base, so I can write a short program to manage all this information and make updates much easier, and also help you in that I would be able to tell anyone their current status in the short time it takes to boot a computer. This may also be a way of getting around enforcing updates only in prescribed multiples. I am also keen to see endorsement stickers for DXCC and some of the other awards. I would appreciate any input from people involved in DXCC on these and any other issues they feel important.

Grid Square Award

My predecessor (the late Ken Gott) was committed to introducing a Grid Square award, which is uncanny, because it's something I also believe in very strongly, and hope to get off the ground shortly. I can promise you it will be worth the wait. In the meantime, can I please have some input? For instance, do we have a HF and a VHF version? Do we use the same rules as the ARRL VUCC or what direction should I be heading in? I have my own ideas, but will save these for a future issue. I would also like to see an award just for six metres, with a name maybe based on the current solar maximum.

New Address

As you may have noticed, I have given the address of the WIA Federal Office as the address for the awards manager. This is to prevent a repetition of the current situation. In the past, the advertised address for the awards manager was the home address of the person doing the job at the time. The new policy will be that the address given to overseas organisations will be that of WIA Federal Office, so that if I change address or have to resign for some reason, we do not have to notify all overseas clubs etc. I have been told that mail still regularly arrives at addresses from more than 10 years ago.

Need for input

I am always open to suggestions and would welcome any ideas you may have to forward, be they changes to existing ones or new ones.

WAVKCA VHF

One thing I will be looking into is why the WAVKCA (worked all VK call areas) for HF is an oversize colour and rather good-looking certificate, but the WAVKCA VHF is a rather plain A4 sized affair? This seems to be the wrong way around. Actually, I would like to see just one certificate (the current HF one) and endorse it for 50MHz, 144MHz etc. Does anyone know how this situation arose?

WIA80 award

Applications for this award are starting to pick up, with the majority coming from overseas. It would seem that we are just beginning to see the results of publicity for this award.

Awards recently issued

The following awards have been verified and mailed during the past month

WIA80

No	Callsign	Name	Endorsement
29	VK6PY	Paul Yates	First VK6
30	OH6IU	Pehr Hending	First OH
31	KM4ZM	David Martin	First Alabama
32	K8CSG	Bill Gary	
33	KB7GOW	Kirk Wheeler	First Arizona
34	VK3AJO	Vincent Winterbine	
35	VK3KS	Mavis Stafford	All 2-way CW
36	ZL2AGX	Dawn Young	First ZL
37	W3KRB	W G Owen	First PA
38	HL5AP	Byong Joo Cho	First HL
39	VK4NFE	Bob Neville	First VK4
40	ZL1BJN	W K Schief	First ZL1
41	KI5X/5	George Hawkins	First Mobile

HAVKCA

No		
160	Gary Szucs	MI USA

WAVKCA (HF)

1814	Wayne Sutherland	NQ7Q
1815	Paul Meecham	VP2EXX
1816	Michael Klengel	Y78SL
1817	E Buchman	HB9BEG

WAS (VHF)

No 178 FK1TK Henri Rainer 50MHz SSB

I must get around to claiming WAS VHF for myself as FK1TS, when I work out how to do it and who issues it! I can't understand why there are so few claims for WAS VHF, when it is relatively easy to pick up. I will try to get a bit of publicity in Japan through some of my old 6m contacts, and see if we can't get this one moving a bit.

I have deliberately not made any references to any new awards from overseas this month, as I have to check which ones have been included in these pages before and which haven't. As well, I would like to only present awards that have some merit and that are reasonably difficult to obtain, ie require some effort to qualify for them.

My apologies to Vincent Winterbine VK3AJO for mailing your award to the VK3 Division office — I wrote down the first address I saw on your letter, not realising what it was, and that it was the address you sent it to. I tried to phone you, but no luck. I hope you got your award okay.

Also, thanks to Ivor Stafford VK3XB for your phone call and nice comments about your certificate. I will be in touch soon about DXCC etc. Anyone else with any ideas about anything in the column, please feel free to contact me after 7.30pm weekdays or on weekends on (03) 434 6424.

73 TO ALL
ar

HOW'S DX

STEPHEN PALL VK2PS
PO Box 93 DURAL 2158

We are approaching the half-year mark in our calendar, and with it comes the ever-changing propagation pattern. The solar flux dropped at one stage on 31st May to 120, the lowest recorded for a number of years. Several heavy disturbances occurred also this month, which made conditions quite difficult for DXers.

Studying the propagation predictions provided by Roger Harrison on the pages of "AR" will help you to use the bands at the most advantageous times.

YEMEN — 7O

It was in the "wind" since early March, or in the "ether" as pre-war old-timers described the upper regions of space, that a joint 7O-4W DXpedition will be activated from these much sought after countries. Little did we know at that time that a political event will make Yemen, as such, a new DXCC country, replacing the 7O and 4W prefixes with a new one.

On 23rd May, North and South Yemen told the United Nations that they had merged into a single state, the Yemen Republic. This merger will create a powerful new Arab State the size of France, with a population of about 14 million. The new capital of Yemen is: San'a and its principal port and commercial centre is Aden

A few days later, three Kuwaiti amateurs: Yosouf 9K2CS, Mohammad 9K2MJ and Mohammad 9K2DR arrived at Aden and activated 7O1AA. Their equipment is a TS440S and a TL922 amplifier, a three-element beam and dipoles for 40 and 80 metres. They worked only 10-15 and 20 metres in the SSB mode. Frequencies used were 28460, 21295, and 14195, listening up five with split operation. They appeared also on the three Australian nets, to the joy of many VK, ZL, Pacific and USA amateurs.

QSLs go direct to 9K2CS, Saud Alsabah, Box 476, Kuwait, Kingdom of Kuwait, Asia.

Conway Reef — 3D2AM

This was again a well planned and precise operation organised by the Yasme Foundation, an international DX group, and supported by NCDXF, JA "CQ" Magazine and Icom America.

A number of operators from the previous Jarvis Island activity and other DXers who were in the Pacific Area took part. A 66ft schooner, bearing the name of "Yasme", took the eight DXers, representing six different countries and four continents, to Conway Reef on 18th May, for a nine-day operation. It was a five-station activity on CW and SSB and on six bands, from 1.8 to 28 MHz. I was fortunate to work them on the last day on 80 metres. There was no pile-up, and no takers to the CQ call. The operator, Peter OH1RY, told me that they will be leaving in three-four hours, after a successful operation and about 45,000 QSOs. The same boat is scheduled to continue its journey to reach other Pacific locations later this year

QSLs to: The Yasme Foundation, PO Box 2025, Castro Valley, CA 94546 USA.

Spratly Islands 1S0XV

This operation lasted almost one month, with some interruptions due to fuel and generator problems.

The Spratly Islands are located in the South China Sea.There are about 100 islands, but only 33 remain above sea level. The island group covers an area of about 180,000 square kilometres.

The expedition ended on 12th May with about 45,000 contacts. There were several Russian operators who were active previously in Vietnam prior to going to Spratly. Towards the end of May a number of them were still active under one of these callsigns: 3W1PZ, 3W6PY, 3W9CZ, XV0SU and 3W3RR.

QSL cards to all above Spratly and Vietnamese callsigns, to be sent to PO Box 308, Moscow, 103009, USSR.

Willis Island VK9

When you read these lines, Trevor VK9TR will have already left or will be in the process of leaving the island for Adelaide, after the completion of his tour of duty. Willis Island lies about 300 miles east of Cairns (16°S and 150°E). The main island is about 400 metres long, 180 metres wide and nine metres above sea level. The island is administered by the Australian Bureau of Meteorology and is manned by four officers from time to time, who spend a six-month tour of duty there. It is very likely that, in the future, remote weather facilities will be established on the island, which will curtail future amateur activity from that location. Trevor has made about 5000 contacts, and was one of the most obliging and co-operative amateurs who made himself available in his spare time for all the DXing fraternity, both on nets and outside nets.

Western Samoa Amateur Radio Club Inc

Some issues earlier (Feb and March AR) we published some comments about the Western Samoa Amateur Radio Club Inc, on a basis of a QSO and a letter received from Pete 5W1KT. This prompted the club to write to the WIA Melbourne office with some information about the activities of that club, pointing out the correct situation. Pete 5W1KT has also written to explain that some of his comments were based on personal observation only. There was no criticism intended, and he apologises to anyone who may have been offended by his personal opinion. Here now are the basic facts based on both letters

The Western Samoa Amateur Radio Club Inc, does exist. It is active and recently celebrated its 22nd year of existence. Members are: President, Phil 5W1AU, Secretary, Marty 5W1AT, Treasurer, Jim 5W1AC, Percy 5W1AB, Ernest 5W1AA, Clyde 5W1AI, Larry 5W1BB and Uti 5W1BC, a YL member. All except Clyde are locals. The QSL bureau postal address is PO Box 1069, Western Samoa, and is run on incoming basis only for those operators who are still on the island at the time of receipt of the card. The members of the club are active in varying degrees, depending on the amount of damage suffered by the stations in recent cyclones and the members' work schedules. Many visiting DXers are active from Western Samoa. Pete was entertained at a barbecue by President Phil. Western Samoa does not have an official reciprocal agreement with any country. However, as a courtesy, the Western Samoa Post Office, which is the local authority, will issue a licence to operate, and a callsign, which is yours for life, on a written application and the production of a valid Amateur Radio licence from a recognised ITU state, and on payment of $15 local funds. This licence is issued as a courtesy to visiting amateurs.

We trust that these explanations have now clarified the position of the WSARC Inc.

Nauru-Kiribati-Tuvalu

Jack VK2GJH, better known as T30JH, was active during the month of June in the area. He was in Nauru as C21NI from 31st May to 5th June; as T30JH in Tarawa, Kiribati from 6th to 15th June; in Funafuti Tuvalu as T20JH from 15th to 20th June, back to T30JH from 20th to 21st June, and back to Nauru C21NI from 27th June to early July. It is interesting to note that one US station, WA6TUA/5 was waiting for 31 years to finally work C21, which he now did.

QSL direct only to: PO Box 299, Ryde, NSW, 2112 with SASE

The ANZA Net

The ANZA net, on 21205 kHz, and its net controller, Percy VK4CPA (formerly VK3PA) celebrated the 20th anniversary of the establishment of the Australian New Zealand Africa net on 20th May, 1990. The net is now 20 years old, and is still going strong under Percy's leadership, with some assistance from

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others. Congratulations and happy DXing to all of you. A detailed report of this very rare achievement will appear in the near future in "AR"

Interesting QSOs and QSL Information

Note the following abbreviations. Callsign-name-frequency-mode-UTC-month of QSO. ADAR means QSL info in previous "AR" issues.

HS0M Mike — 14200 SSB 1125 — April. QSL to WA4BQ via Bureau.

TG9/KP2Z — Aki — 7003 CW — 1155 — May. QSL to: JA5DQH Akito Nagi, Box 73, Ishii, Tokushima, 779-32 Japan.

4U1WB — 14206 — SSB — 1237 — May. QSL to: KK4HD Paul J van der Eijk, 7524 Dolce Dr, Annandale, VA 22003 USA.

BZ4RC — Chen — 21023 — CW — 0654 — April. QSL to: Box 538, Nanjing, PR of China.

8J7ITU — 21021 — CW — 0704 — May. QSL to JARL via Bureau.

OY7ML — Martin — 21009 — CW — 0711 — May. QSL to: Martin Haasen, PO Box 184, Torshavn, FR100 Faroes Islands, North Atlantic.

PY0FF — Andre — 14225 — SSB — 0900 — May. QSL to. Cx Postal 1, Fernando de Noronha, PE 53990, Brazil.

YK1AO — Omar 28522 — SSB — 0603 — April. QSL to. Omar Shabaigh, PO Box 245, Damascus, Syria.

1S0XV — 28545 — SSB — 0735 — April. QSL to. Box 308, Moscow, 103009, USSR.

TL8WD — Dieter — 28456 — SSB — 0735 — May. QSL to: DL8CM, ADAR.

3B9FR — Robert — 14215 — SSB — 1130 — May. QSL to: Box 31, Rodriguez Island via Mauritius, Indian Ocean.

XF1C — Ben — 21205 — SSB — 0543 — May. QSL to: WB6JMS James L Arthur Jr, PO Box 84, Atwood, CA 92601 USA.

7X2FK — Mohammed — 14243 — SSB — 0612 — May. QSL to: PO Box 105, Rouiba, 35300 Algeria, Africa.

EL7X — Willy — 14193 — SSB — 0749 — May. QSL to. Willy Lameree, Box 538, Monrovia, Liberia, Africa.

S79FT Frank — 21205 — SSB — 0521 — May. QSL to DL7FT Frank Turek, Box 1421, D-1000, Berlin 19. BRD.

HC6CR — Roberto — 28539 — SSB — 2237 — May. QSL to Roberto Camacho, PO Box 614, Ambato, Ecuador.

RZ8T/UA4 21205 SSB 1147 May. QSL to. Box 555, Penza, 440061 USSR.

SV9AKI George 14243 SSB 0614 May. PO Box 33, Souda, 73200, Island of Crete, Greece.

9L1US Dave 14201 — SSB — 0644 — May. QSL to WA8JOC Kenneth S Scheper, 5875 Cedarridge Dr, OH 45247, USA.

FT5XH Francois — 14226 SSB — 1204 — May. QSL to: F6GYV Francois Treveneau, 143 Rue de Malbec, F 33800, Bordeaux, France.

H44AP — Al — 14199 — SSB — 0909 — May. QSL to: Box 418, Honiara, Solomon Islands, South Pacific.

C6AFW Farley 14232 SSB — 1115 — May. QSL to: PO Box N-1316, Nassau, Bahamas.

C31UA Carles 14118 SSB — 0556 — May. QSL to: Carles Munoz Hilpke, Hotel Festa Brava, La Llacuna 7, Andorra la Vella, Europe.

A35KY — Zbig — 14222 — SSB — 0902 — May. QSL via WA3HUP (via Bureau for VKs only).

CN8GJ — 14243 — SSB 0622 — May. QSL to: Box 21 Mohamedia 20900, Morrocco, Africa.

3B8CA — Jacques — 14226 — SSB — 1313 — May. QSL to: Jacques Cantin, Grand Baie, Mauritius, Indian Ocean.

3W1PZ — 14003 — CW — 1256. QSL to: Box 308, Moscow 103009, USSR.

7Q7LA — Les — 21205 — SSB — 0536 — May. QSL to: G0IAS A R Hickman, Conifers, High St, Elkesley, Retford, Nottingham, Notts DN22 8Aj.

9K4KS — Kenny — 14243 — SSB — 0625 — May. QSL to. WA4JTK Alan E Strauss, 17401 NW 47th Ave, Carol City, FL 33055, USA.

3D2XV — Bing — on Rotuma — 14222 — SSB — 0445 — May. QSL to: VK2BCH, Box 344, Forster, NSW, 2428.

CE0DFL — Marco — 21 MHz — SSB — 0406 — May. QSL to: PO Box 7, Easter Island, Chile.

CP6EX — Mike — 21296 — SSB — 2230 — May. QSL to: PO Box 3478, Santa Cruz, Bolivia, South America.

3DA0BK — 28495 — SSB — 0624 — May. QSL to: PO Box 122, Eveni, Swaziland, Africa.

3W6PY — 28495 — SSB — 0725 — May. QSL to: PO Box 43, Temirtau, 472310 USSR.

A22JP — 28475 — SSB — 0710 — May. QSL to: PO Box 1022, Gaborone, Botswana, Africa.

RTTY News

Pick of the month of RTTY QSOs as supplied by Syd VK2SG.

ZP2EM 14083 — at 0030Z.

OD5SK — 14083 — at 2358Z. QSL to Box 130, Tripoli, Lebanon.

SV5TS — 21086 — at 1758Z. T32AB 21085 at 0751 Z. QSL to: N7YL.

ZS9A 21095 — at 1710Z. SU1HN 14083 — at 2355Z.

FT5DX — 14081 at 0235Z. TJ1MW — 21084 at 1529Z.

V85GA — 14072 at 1244Z. ARQ. TA3D — 14088 at 0317Z, QSL to: Box 963, Izmir, Turkey.

HH2PK — 14087 — at 0027Z. QSL via: N1DRS.

8P6QA 21085 — at 1925Z ARQ. 7Q7LW 14085 — at 2000Z.

P43SF — 14083 — at 2001Z.

From Here and There and Everywhere

Brian VK5BAS advises that SV9AHZ will be active as J49E from 1-15 August on a small island south of Crete on all bands. CW still has its place, especially if it comes to a challenge. Recently I worked W2PJW on 14 MHz in the CW mode. Ed is in New Jersey. He uses 5W with a loop in his attic as his antenna. A real QRP station with a QRP antenna. My report to him was 449.

Max VK2APD worked WA5MKU on 15 April. This was a special event station commemorating the 78th anniversary of the loss of the "Titanic" with 1517 lives. The historic CW message was as follows: "CQD CQD SOS SOS CQD SOS MGY (MGY the call letters of the Titanic) Come at once. We have struck a berg. CQD OM position 41° 46 N 50° 14' W. Require immediate assistance, we have collided with an iceberg. Sinking. Can hear nothing for noise of steam." A handsome certificate and detailed fact sheet were sent to Max for the confirmation of the QSO.

Jose VK2FNJ advises about two South American nets which are looking for VK participation. The Brazil DX Net is on 14236 kHz at 0900 UTC from Monday to Friday. Net controller is Daniel PT7BI. On Saturday and Sunday the same net is on 28530 at 1500 UTC. The Latin American DX net is hosted by Nathan OA4OS, and meets on 14143 KHz at 2200 UTC.

ZM6CA is a special call commemorating the NZART annual conference at Hamilton, NZ. The call was used in May and June. QSL to: ZL1HJ M Gannon, 9 Liverpool St, Te-Kuiti, 2500 NZ.

IK5DNE/IA5 was a special station from Elba Island IOTA No EU28. QSL to: IK5DNE.

The QSL info for special call IQ5AP is IK5HHA.

FO0SST Steve was on Kauehi Island IAOTA OC 66 and QSL to: AA6LF.

ET3AZ was heard on 14240 kHz at 1530 UTC early in May. The operator's name was Mike, and he gave his QSL info as. Telecom Radio Club, Addis Ababa. Does anybody else know more about this call?

On 10 May the Spratly operators were calling CQs and looking for QSOs on 28496 at 0600 UTC without takers. This gave me the opportunity to have a short chat with the operator Yuri, homecall R18PY, mentioning to him that a mysterious Spratly callsign, 1S5IJ appeared on the bands. Yuri told me that it was a pirate. Despite that he spoke Russian and gave a Russian home call as his QSL info.

If you are interested in DXing, ask your radio club to borrow the videotapes produced by the VK2 Division about the following DX topics: "HF DX Seminar" with Iris and Lloyd Colvin (1hr 14min), "Making Friends on DX" by Syd VK2SG (28min), "How to Survive in a Dogpile" by John VK2DEJ (2hrs 15min).

Please read all the rules on how to borrow from the WIA videotape library on page 31, February 1990 "Amateur Radio"

If you worked HH2YF on 14236 kHz at 0930 UTC, he was "Yves" on the Brazilian net. QSL to: PO Box 13339, Port au Prince, Haiti, Caribbean

It was also reported on the same net that XZ1A was heard working on 21185 at 0800 UTC with a QSL address to JA1UT

Zbig ex-VK2EKY, on his Pacific wanderings, went first to KH8 as KH8/VK2EKY, then he operated from 5W1KY, and finally he operated as A35KY He described his A35 as the best QTH of the three He planned to go on another island early in June

FT4WB Crozet Island was reported to be active on 28480 kHz.

ZS8MI has a new operator Gerard. He gave his QSL info as: PO Box 13077, Jacobs, 4026, Natal, RSA. The QSL address of 4UVIC, which was active in the second part of June, is: WB4FNH, Madagascar, 5R8J (QSL to F5IL) was supposed to appear on several nets in May but, so far, I did not hear from anyone who worked that station.

Was it a practical joker or was it real? EP2MANIA was heard operating at 0425 UTC on one of the nets on Friday.

FJ5BL was active from St Barthelemy Island in the Caribbean. QSL to: F6AJA.

8J90XPO is a special event station at the International Garden and Greenery Exposition in Osaka, Japan, till 30 September. QSL to JARL via Bureau.

HF0POL is a Polish club station on King George Island in the South Shetlands, active on weekends on 28560 — 21260 — or 7060. QSL to: KB6GWX.

Market Reef: OH2AP/OJ0 was active between 29 May to 3 June. QSL to: OH2AP.

And, for those who are chasing DXpeditions, here are the usual DXpedition frequencies: CW — 28025, 21025, 14025, 7005 and 3505 kHz. SSB: 28495, 21295, 14195, 7045, 7080, 3795 kHz. VK6RO advised me that he has now worked 100 countries on FM, and he claims to be the first VK operator to have done it. He started FM country hunting on 20 January 1982, and the last one was Spratly Island 1SOXV on 28 April on 29600 kHz. Has anyone else worked more than 100 countries on FM?

Interesting QSLs Received

Note. W=weeks, MO=months, FM-from MGR=manager OP=operator

Direct QSLs received: JT0DX 5MO FM MGR, P43HM 4MO FM OP — TT8CW 11 MO FM MGR, 5N7NU 3MO FM MGR VK9TR 2W FM OP — VR6KY 4MO FM OP — A92FB 2W, 5B4SA 4W — FW/YJ8M 4W, KH6JEB/KH7 4W, 9J2BO 7W, V85GA 4W XW8DX 11W, TF3CW 9W, CO6CD 9W, 5Z4FO 3W, Z24JS, 4W FM MGR, HS0M 1MO FM MGR.

Thanks to you . . .

Many thanks for the information received from VK2XBB, VK2APD, VK2GJH, VK2DID, VK2FNJ, VK2PRS, VK2SG, VK3DD, VK4OD, VK4OH, VK5NVW, VK5BAS, VK6RO, VK6NE, WIA Federal Office, Western Samoan Amateur Radio Club Inc, 5W1KT, "QRZ DX", "The DX Bulletin" and Sydney Morning Herald. Your support is very helpful and is always appreciated

If you have not heard Pat VK2RZ on the bands lately, the reason is that Pat is in hospital. The DX fraternity wishes him a speedy recovery from his recent injury. **ar**

VHF/UHF AN EXPANDING WORLD

ERIC JAMIESON VK5LP
9 WEST TERRACE MENINGIE 5264

All times are Universal Time Co-ordinated indicated as UTC

Australian Amateur Bands Beacons

Freq	Call sign	Location	Grid square
50.056	VK8VF	Darwin	PH57
50.066	VK6RPH	Perth	OF78
52 200	VK8VF	Darwin	PH57
52.320	VK6RTT	Wickham	OG89
52.325	VK2RHV	Newcastle	QF57
52 330	VK3RGG	Geelong	QF21
52.345	VK4ABP	Longreach	QG26
52 370	VK7RST	Hobart	QE37
52 420	VK2RSY	Sydney	QF56
52.425	VK2RGB	Gunnedah	QF59
52.435	VK3RMV	Hamilton	QF12
52.440	VK4RTL	Townsville	QH30
52 445	VK4RIK	Cairns	QH23
52 450	VK5VF	Mount Lofty	PF95
52 460	VK6RPH	Perth	OF78
52 465	VK6RTW?	Albany	OF84
52 470	VK7RNT	Launceston	QE38
52 485	VK8RAS	Alice Springs	PG66
144.400	VK4RTT	Mount Mowbullan	QG62
144.410	VK1RCC	Canberra	QF44
144.420	VK2RSY	Sydney	QF56
144.430	VK3RTG	Glen Waverley	QF22
144 445	VK4RIK	Cairns	QH23
144 445	VK4RTL	Townsville	QH30
144.465	VK6RTW	Albany	OF84
144.470	VK7RMC	Launceston	QE38
144.480	VK8VF	Darwin	PH57
144.485	VK8RAS	Alice Springs	PG66
144.530	VK3RGG	Geelong	QF22
144.550	VK5RSE	Mount Gambier	QF02
144.600	VK6RTT	Wickham	OG89
144.800	VK5VF	Mount Lofty	PF95
432.160	VK6RPR	Nedlands	OF78
432.410	VK1RBC	Canberra	QF44
432.420	VK2RSY	Sydney	QF56
432.440	VK4RSD	Brisbane	QG62
432.445	VK4RIK	Cairns	QH23
432.445	VK4RTL	Townsville	QH30
432.450	VK3RAI	MacLeod	QF22
432.535	VK3RMB	Mount Buninyong	QF12
432.540	VK4RAR	Rockhampton	OG56
1296.410	VK1RBC	Canberra	QF44
1296.420	VK2RSY	Sydney	QF56
1296.440	VK4RSD	Brisbane	OG62
1296.445	VK4RIK	Cairns	QH23
1296.480	VK6RPR	Nedlands	OF78
2304.445	VK4RIK	Cairns	QH23
2306.440	VK4RSD	Brisbane	OG62
10445.000	VK4RIK	Cairns	QH23

Can anyone report on the status of the Albany beacons please?

Six Metres

The six-metre DX situation has been rather quiet during the past month in VK5.

Hugh VK5BC near Berri has spent a lot of time calling CQ DX on CW, and occasionally he lands something. He recently scooped up 3D2PO, worked a few VK2s and VK4s on backscatter and then on 22/5 around 0400 he worked ZL1AXB on CW. The ZL was S5 here while in contact with Hugh but, on concluding, simply faded out so the key was put away once more! For most of the day there had been weak backscatter signals, mostly from VK2.

Col VK5RO has had a reasonable degree of success during 1990 and the following shows what has been available in VK5 starting on 11/1/90 at 0815 with HL9TG and JA2, 3, 4, 6, 9. 25/1 0801 ZL9TPY 11/2: all JA districts 18/2: 1014 NI6E/KH6 then more JAs. 20/2: 1452 KJ6WD/DU3. More JAs from 27/2 until 4/3: 0500 HL1FF followed by all JA districts. JAs practically every day until 20/3 then at 0628 HL1GR and JAs. 21/3: 2205 T20AA and JAs 24/3 0340 KG6DX, 0400 JG3DMH/JD1, 0751 KH6JEP/KH7 2151 N6AMG/KH8 25/3. 0010 heard ZF1RC, 0130 HL1ST; all JA districts then at 0351 HL2IFF

1/4: all JA districts then at 2200 K6MYC and 5W1JP heard on backscatter 2/4 2251 W6JKV/FW, 2254 HR1WPK, 2308 ZL2KT; 2330 5W1JP and heard HH5DK and V31PC. 5/4 2258 3D2PO 6/4 2359 3D2PO, 12/4 2230 3D2PO, 2310 XE1GRR. 13/4: 0108 VK9LG; 0214 NI6E/KH6 and at 2246 heard a TI2 station 14/4 0038 KH0/JJ1AEB, 2310 T20AA; 2320 3D2PO, 2350 KG6DX. Between 1050 and 1103 heard the 9V2ST beacon sending 9999911317 continuously on 50.100 15/4: 2319 3D2ER, 2336 3D2CM, JA6, 7, 8. 16/4: 0821 KH6IAA; 0823 NI6E/KH6; 0900 KH6SB. 17/4: Heard brief CQ call from ZS6XL at 0758; 2203 N6CW and heard W5FF.

18/4 2307 3D2CM. 25/4 2226 3D2PO and JA3, 8 26/4 2345 ZL7TZ. 27/4 0017 ZL1AXB; 2322 W4EQM, 2350 3D2PO 28/4 all JA districts. 30/4 JA1, 2, 8, 9; 0645 3D2PO. 1/5. 0156 XE1GRR, 0323 FO5DR, 0340 FO4NK. Since then a few JAs with best on 12/5. (It is interesting to note the large number of contacts with stations in 3D2 Fiji).

Col also reported that during the auroral opening on 11/4 between 1025 and 1327 on 50 MHz he worked VK3OT, VK3AME, VK3AIG, VK3NM, VK5BC, VK7IK, VK7DC. On 144 MHz he worked VK3UM. His comment was that there were no beat notes — just like the old time spark transmitters'

Bill VK5ACY reported working W4EQM at 2245 on 27/4 at 5x5 JAs have been fairly regular around the middle of the day with a good opening on 12/5 from 0500 to 0900. VK4FNQ was heard working 5W1KT.

In the eastern states there was more activity. Steve VK3OT has been well rewarded for his long hours of perseverance, the following being his rewards for this equinox. 22/3 2330 ZK1WL 5x9; 2335 T32VP 5x5; 0700 KH6JEB/KH7 5x4. 7/4. 0056 YC0UVO 5x3. 15/4: 2235 V73AQ 5x5 16/4 0015 AH3C/KH5J. 24/4 2140 ZK2KK 5x9. 26/4. 2250 V31PC 5x5. 29/4: 0121 HH7PV 5x7. 30/4 0020 YV4DDK 5x3; 0133 TI2KD 5x3. 1/5. 0135 PJ9EE 559. Also in 1990 he worked ZL9TPY, FO5DR, FO4NK, 4W1JP, 5W1KT, ZK1CG, T32IO, T32B, YB0ARA, ZL7OY/A, ZK2KY.

That's quite a successful effort considering overall conditions were not as good as last April These contacts give Steve a very respectable tally for the Six-Metre Standings. Steve reports the QSL route for PJ9EE is via YB3CN, whose address is available from Steve via a phone call.

New South Wales

Mike Farrell VK2FLR (formerly VK2AM) reports that between 18/2/90 and 4/5/90 he worked 17 countries outside VK and ZL. He lives at Glebe Point, which is 2km west of the centre of Sydney and is badly obstructed in all directions east of north, so he considers he has had his fair share of DX!

On 18/2 at 1000 he worked NI6E/KH6 at 5x5 28/2 1225 JR6HI on Okinawa. 3/3 0330 JE0OGG 559; 0450 HL1IFF 539; 0750 JL1IRG 539 JA1, 2, 8 and 9 were worked between 4/3 and 17/3 22/3 2350 KG6DX 569 24/3 2145 N6AMG/KH8 5x9; 2210 T20AA 4x2, 2220 V31PC 5x7. 25/3 0045 JA8RC 5x7, 0130 HL1ST 419, 0205 JA7CSL 559, 0250 KG6DX 5x9; 2143 N6AMG/KH6; 2220 ZK1WL 4x1 and then more JAs Between 2040 and 2200 heard ZF1RC, 6Y5IC, 6Y5PS, HI8W and HH7PV 29/3 2205 K6STI 5x5, 2220 N6CA 419. 30/3 between 2200 and 2400 heard W6AMG/KH8, T20AA, K6CXY

1/4: 0230 V73AQ 5x5. 3/4: 2210 5W1JP 5x9,2215 W6JKV/FW 5x5 18/4 2130 T20AA 5x9 also heard weakly AH3C/KH5, XE1GRR and ZL3ALE. 24/4. 2130 ZK2KK 5x7 26/4: 2345 XE1GRR 3x3; 2350 V31PC 3X2. 28/4: 0610 TO 0845 JA1, 7, 8, 9. 30/4: 2350 5W1KT 5x3; 1135 to 1320 JA1, 2, 0. 1/5: 2315 3D2PO 5x3; 2350 N6CW 5x3. 2/5: 0020 YV4DDK 5x2; 0040 PJ9EE 5x1.

It is interesting to note that whilst there were a few good strength contacts, many were marginal at 5x3 or less and is summed up by Mike's words that "in comparing this equinox with the corresponding autumn equinox of 1989, I feel that last year was better in that trans-pacific openings started earlier in the season, they were of longer duration and signals were stronger. On the other hand, the frequency of openings was about the same and there was more activity from DXpeditions in the Pacific region. I suppose it would be too much to expect a repeat of the tremendous X-class flare activity we had in early March 1989!"

Queensland

Ron VK4BRG has written from Box 323 Sarina Qld 4737 saying that for the time being he will be QSL manager for Simon YJ8GP for direct-only cards.

When Ron was in YJ8 last July he left a six-metre rig and 60-Watt amplifier with Simon to keep YJ on the air. For various reasons Simon is behind with his QSLe and Ron will help to clear his existing backlog — in other words, anyone who sent a direct QSL should not need to send a further card.

Ron reports six metres not as good as expected but in April had some interesting contacts as follows 13/4: 0155 to 0312 K6GSS/KH6, KH6IAA, NI6E/KH6; 1129 VK9LG. 1858 to 2348. TI2KD, TI2RH. TI2HL, KG6DX, 3D2AG, T20AA, TI2NA, TI4JHQ. 14/4: 0236 KH0/JJ1AEB; 2039 to 2400 T20AA, TI2KD, ZK2KY, YV4AB, 3D2PO, AD6C, V73AQ, 5W1KT, KH0/JI1NJC. 15/4: 0018 AH3C/KH5J. One would think Ron's hands would be trembling after writing so many elusive contacts into the log!

Six Metres DXCC

I was pleased to receive a communication from Ray Clark K5ZMS, Number 1 member and secretary of SMIRK, to the effect that the American Radio Relay League DXCC Desk has determined the first recipients of Six Metre DXCC. No 1 DXCC goes to Lee Fish, K5FF and No 2 goes to her husband Fred W5FF. No 3 goes to Bob Billings VE1YX. There are about nine or 10 others who are waiting for QSL cards and these include JA4MBM, W4CKD/W8, K1TOL, W3XO/5 and LU3EX. Both Lee and Fred now have 113 countries worked on six metres!

As a result of the ARRL declaring these three new holders of DXCC, SMIRK has declared Lee Fish K5FF the winner of the SMIRK DXCC Trophy. Because the No 2 holder is her husband, his name and callsign were added to the trophy and it was awarded jointly.

The presentations were made at the Dayton Hamvention VHF/UHF Forum in the USA on 27/28 April 1990. International Awards of Merit were also presented as follows: For Service Achievement to Ray Clark K5ZMS; Technical Achievement to Ed Tilton W1HDQ, Operating Achievement to Bob Billings VE1YX; Special Achievement to Kazuo Ogasawara JA1RJU

Ray K5ZMS says he has not yet been able to complete a list of all countries active on six metres but estimates that there have been in excess of 150 countries and this includes the various DXpeditions that have come and gone VK5LP attempted to produce such a list but after 80 countries I ran out, so I do not possess precise information on the status of many small countries and islands — I am certain such information has to come from the northern hemisphere where there appears to be greater potential for establishing contact with rare countries and for dissemination of the appropriate information.

Who's on Six

Ray Clark K5ZMS and his Six Metre News lists a number of stations and areas which are likely to be activated on six metres, and the following is a precis.

V31JO is active. WA2ALY is providing the call VQ9LW. G4KLF/MM will be ZS1DD/MM and has his A45ZN call and hopes to gain permission to operate from Oman. JA8JRC/6W1 continues to be active from Senegal. Richard EL2B is back in Liberia EL2FO should be receiving his SB110 from N2AU and be on six soon. Jose CO2JA is said to be active. Jack T30JH is on six and plans to operate from Nauru as C21JH. Andy VS5DA is on between 1300 and 1600

West German use of ..x metres is expected soon. They will have 50.080 to 50.400 with 25 Watts ERP and horizontal polarisation, CW and SSB only and the permit is for one year East Germans are seeking six-metre permits

Monaco may be on six soon, depending on Italian/French authorities.

Jim J37AE departed Grenada in April, ending operations from there

6Y5IC has trouble with his transverter and is trying to obtain parts to make repairs.

SMIRK has donated an antenna to allow VP8BFH and VP8BOQ from The Falklands to come on six metres.

QSL Routes

From Ray Clarke also 6Y5FS has returned to England QSL to N E Bethuna G3FRS, 22 Dunbar Road, Wood Green, London N22, England.

AH3C/KH5J Jarvis Island go to JA1BK.

Eric (ex FO0OQ is now FE1JKK/FY and QSL via FD1JMH.

Matts Persson SM7PKK to Betesy 22, S-24010, Dalby, Sweden.

Mike Barry ZD8MB has returned to England — QSL as G4MAB, 'Holme Beck', Low Hesket, Carlisle, Cumbria, CA4 OEU, England.

The DX Report

The SMIRK DX Report is very comprehensive, and stations in the northern hemisphere have been involved in contacts to many we probably dream about. The following are some callsigns worked by various stations during the period between 23/3 and 30/4 and are generally those not so far reported by me: 6Y5FS, CE0DFL, SV1DH, KB6SL/CE3, PY0FF, CT1DTQ, CT3DJ, PA3EUI, LA2AB, VE3KKL, LU2DEK, 8P6JW, VR6JR, TR8CA, FM5WD, 5H1HK, HC1BI, HC5K, 7P8EN, YC0IKI, ZP6XDW, 9H1BT, WH3AAD, 9Y4VU, LX1JX, A22BW, ZK1CG, LU3EX, CX8BE, 9L1US, F8SDR, YV52Z, 9Q5EE, V29OA, HC2GE, ZD7CW, PY2DM, ZS9A, ZS2FM, OZ4VV plus countless Wa and JAs.

Just for readers' interest, here is an abridged report from SMIRK covering one day only, which indicates the type of activity taking place across the equator: 31/3/90. Flux=172 A=7 K-2. 8P6JW reports 0130-0200 working LU, HC. 0150-0300 heard ZD8 beacon. OA, TI2. 0340 W6JKV/FW to HC1BI. So far he has worked 5H1, TI2, FO5, 3D2, VK4, P29, KG6, FY7. 1400 8P6JW has 5H1 beacon. 1535 V51E to 9H5, ZC beacons. HC5K has LU and CX. ZS6BW has 5B4 and SV beacons. Large opening between North and South America. 1545 7P8EN DXpedition into Mediterranean area. LU to W7. 1730 to 1945 8P6JW worked YC0UVO, YC0IKI, FM5WD, 5H1HK. 1955 W7 to LU again. FY7 beacon to FW. 2000 TR8CA worked 8P6JW. 2025 3D2s to KH6JEB/KH7. 2030 ZLs to W6 and VK to V73. 2205 P29 hear 5W1. LU to W6. 2240 KH6 to LU, CX and ZP. 2305 ZP6XDW got 9H1BT. At 0300 in the morning WH3AAD on Johnston Island was working JAs!

The above paragraph was being repeated in somewhat similar fashion day after day; it all makes incredible reading. There has been so much going on despite the general acknowledgement that this year was not so good as last year!

Two Metres and Above

With most people concentrating on six metres activity on the higher bands has diminished. VK5LP maintains a nightly sked to VK5AKM and VK5KK at Wasleys with 144 and 432 MHz receiving the greatest use. Power levels of three Watts only are required for good contacts to be maintained over the 160km path — not line of sight as the Mount Lofty Ranges intervene. Using one Watt we have been successful with two-way contacts whenever tried on 1296 MHz. With help from VK5KK we hope soon to have 10 Watts from both ends on 1296.

Closure

These notes have been concluded earlier than usual as I am due back in hospital on 30 May for further surgery. I hope to be on deck in time to write something for next month and to include the updated Six Metres Standings.

Closing with two thoughts. "Just because a rumour is idle doesn't mean it isn't working" and "Wild horses couldn't drag a secret from most women. Unfortunately, women seldom have lunch with wild horses". 73 from the Voice by the Lake.

Late item: Steve VK3OT and Arie VK3AMZ worked WS4F and A4VCC the morning of 28/5.

■■

POUNDING BRASS

GILBERT GRIFFITH VK3CQ
7 CHURCH ST BRIGHT 3741

This month I would like to bring you a little overseas news, something that readers of Morsum Magnificat will be familiar with from the number 15 Spring edition:

IARC Proposal To IARU For End Of Morse Test?

Israel's national radio society (Israel Amateur Radio Society) is submitting the following formal proposal to the International Amateur Radio Union Region 1 Conference at Torremolinos, Spain, 1-6 April 1990:

"That IARU Region I agree in principle that in view of the abolition of Morse proficiency testing for Maritime Mobile operators the CW test for amateurs be replaced by some form of operating proficiency test more suitable to the present day data operating modes of amateur radio."

Should this proposal be carried, then an additional proposal is submitted to the Conference suggesting that action be initiated with the ITU to modify Article 32 of the radio regulations to require any person seeking an amateur radio licence to prove that he has knowledge of the various data codes and operating procedures, and has demonstrated his competence in manual keyboard operation. An alternative proposal waives this requirement for those making exclusive use of frequencies above 30 MHz.

The Israeli paper recognises that even if the Conference agrees to its proposals, the need to obtain ITU approval and subsequent adoption by individual administrations means that "nothing will happen overnight". It goes on, however, to make a further proposal, that a working group be set up to devise a practical and theoretical operating examination to "elaborate a common syllabus for Region 1" and "define the required keyboard skills, speed of data entry and acceptable number errors".

The paper is signed by Ron Roden, 4X4RR (G4GKO), IARU Liaison Officer, IARC, who comments "with great respect to the historical and traditional mode of amateur operation and the CW operators (amongst whom I am proud to count myself) I submit that we must not permit ourselves to indulge in nostalgia to the possible future detriment of the Amateur Service".

In its conclusion, the paper says, "It is felt that introduction of the measures proposed will not only prove attractive to the "Computer Generation" but will also fully satisfy the concept of self-training".

And Here Are The Results

Israeli Proposals Defeated

The voting on the proposal by the Israel Amateur Radio Club to the IARU Region 1 Conference in April, that the amateur Morse test be replaced by a test of computer skills, was 30 countries AGAINST and 9 countries in FAVOUR of the proposal.

The following is a summary of the minutes of the meeting which discussed this matter.

The IARC (Israel) delegate introducing the proposal referred to emergency communications by amateurs, saying that AMTOR surpassed CW and, that in a few years time, ships would be equipped with SPECTOR. He felt that the Morse examination was only a bench mark in order to gain access to the HF bands.

SSA (Sweden) — A meeting in Helsinki in February had voted against the Israeli paper. A letter had been received from the Scandinavian CW group protesting against the paper's conclusion.

NARS (Nigeria) — CW was considered very honourable amongst radio amateurs and was very important to African societies.

REF (France) — France's PTT had recently sought the views of REF on the need for a Morse test for amateurs. The REF board of directors had agreed that no Morse examination was necessary. The PTT were surprised by this view but had accepted it and were prepared to give access to frequencies below 30 MHz without the need for a CW test.

PA0LOU, Chairman of the IARU Region 1, said that the paper did far more than deal with the question of Morse code on the HF bands. It dealt with the very future nature of the amateur service. The proposal almost reduced the amateur service to the nature of the mobile service. More young people were needed in the amateur service but they must attain a certain level of achievement. He hoped that amateur radio would continue to provide the sort of challenges that made good radio operators rather than computer operators.

VERON (The Netherlands) — Amateur radio is all about encouraging self-training, building the equipment and technical investi-

gations. The nature of CW meant that communication could be achieved with very simple equipment, ideal for beginners. Thus a knowledge of Morse was required. In addition, CW was efficient and used the narrowest bandwidth of any mode or transmission, allowing more stations to use a given amount of spectrum space. It would be very unwise to remove the Morse examination as an amateur radio requirement, and if it was removed it would be very dangerous for the future of amateur radio.

W1RU, President of IARU, said that he was supposed to be impartial, however, 90% of his operating was on CW. He described some of the history of the amateur service and concluded by saying that the amateur service and the mobile service were not considered to be similar.

URE (Spain) — Felt that there would be no Morse test in three years time, but did not wish to discourage CW as an operational mode.

REF (France) — was not against CW but against the Morse examination. So far as bandwidth was concerned, if the existing bands became crowded then new bands should be proposed.

The votes cast were as follows:

For the Proposal:

CARS (Cyprus), FRA (Faroe Islands), IARC (Israel), MRASZ (Hungary), REF (France), REP (Portugal), SRAL (Finland), URE (Spain), AGRA (Gabon).

Against the Proposal:

ARI (Italy), ARAS (Senegal), ARM (Monaco), DARC (FRG), EDR (Denmark), FRR (Romania), IRA (Iceland), IRTS (Ireland), LRAA (Liberia), MARL (Malta), NARS (Nigeria), NRRL (Norway), OVSV (Austria), PZK (Poland), ROARS (Oman), RSF (USSR), RSVDDR (GDR), SARL (South Africa), SLARS (Sierra Leone), SRJ (Yugoslavia), SSA (Sweden), UBA (Belgium), URA (Andorra), USKA (Switzerland), VERON (Netherlands), RSGB (UK), ZARS (Zimbabwe), BARS (Bahrain), AFVL (Liechtenstein), LARS (Lesotho).

Well, Morsiacs, our side won this bout, but the winds of change are blowing and we will have to watch out. It seems to me that amateur radio has become more of a hobby for the reasonably well-off than ever, and if the Morse requirement is dropped new amateurs will probably not even give it a thought. The less well off will have no idea that you can build cheap equipment yourself, because CW will not be mentioned when training for the licence test. It would be a great pity if one had to buy a computer to enjoy amateur radio, and it would still be impossible for many.

The Keymen's club of Japan (KCJ) is a private club, the members of which are all very interested in Morse communications. The "KCJ single operator CW contest" will be held from 1200 UTC August 18th to 1200 UTC August 19th 1990. If you are interested in competing in this contest, perhaps in order to apply for the WAJA (worked all Japanese Prefectures award) or KCJ award, write to me enclosing a stamped addressed envelope and I will send a copy of the rules. Be quick. **ar**

AMSAT AUSTRALIA

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National Co-ordinator
Graham Ratcliff VK5AGR

Information Nets
AMSAT Australia

Control:	VK5AGR
Amateur check in:	0945 UTC
Sunday Bulletin commences:	1000 UTC
Primary frequency:	3.685 MHz
Secondary frequency:	7.064 MHz

Amsat SW Pacific
2200 UTC Saturday, 14.282 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included on some WIA Divisional Broadcasts.

AMSAT Australia Newsletter And Computer Software

The excellent AMSAT Australia Newsletter is published monthly by Graham VK5AGR on behalf of AMSAT Australia and now has over 270 subscribers. Should you also wish to subscribe, send a cheque for $20 payable to AMSAT Australia addressed as follows.

AMSAT Australia, GPO Box 2141, Adelaide 5001

The Newsletter provides the latest news items on all satellite activities and is a "must" for all those seriously interested in amateur satellites. Graham also provides a Software Service in respect to general satellite programs made available to him from various sources. To make use of this service, send Graham a blank formatted disk and a nominal donation of $10 per item to AMSAT Australia together with sufficient funds to cover return postage. To obtain details of the programs available and other AMSAT Australia services send a SASE to Graham.

Webersat News

WO-18 CCD Camera Iris Settings Experiments

(From AMSAT News Service Bulletin 153.01, June 2, 1990)

For the past several weeks WEBERSAT-OSCAR-18 (WO-18) has been sending three to four pictures daily from outer-space. This continuous stream of imaging data has been part of an ongoing experiment by the students at Weber State University (WSU) to characterize the amount of natural light which enters the CCD camera for the various iris settings. The goal of this experiment is to find the proper settings for the camera iris for a particular light level. This will help considerably in improving the overall picture quality. With the integration of the on-board earth's sensors in the current software, the occurrence of over exposed pictures or totally dark pictures taken when WO-18 isn't earth pointing is no longer a problem. Chris Williams (WA3PSD) says that the painstaking task of manually setting the iris from the ground and observing the results will help software engineers in the future as they continue to understand the CCD camera operation. "The early days of random picture taking is gone," according to WA3PSD. There are 256 possible settings which ground controllers can command the camera iris to; a "zero" setting has the iris completely closed, a "255" setting has it wide open. What will ultimately come out of this experiment is a look-up table in WO-18's software which will say "for this light level, use this iris setting."

Most Asked Questions About WeberWare 1.0

(From AMSAT News Service Bulletin 153.02, June 2, 1990)

WeberWare 1.0 is a software program for IBM PCs and clones which will take raw packets from WO-18 and turn the packets into pictures on EGA/VGA CRT screens. Recently, as more amateurs start to use WeberWare 1.0, the following questions are being asked of AMSAT Area Co-ordinators about its use:

"Does the TNC (automatically) go into KISS mode?"

The answer to this is no. You must command your TNC into KISS mode by typing KISS ON. After this, the TNC must be RESTARTed or turned off and back on so that it will actually start to operate in KISS mode.

"How do you store the files? As ASCII"

The picture data from WO-18 comes down as raw binary data, that is, it is not displayable as ASCII characters. As the data is received, your communications program must store the binary packets in a file. Do not be concerned about ASCII telemetry frames which occasionally come down along with the binary packets. WeberWare 1.0 ignores the ASCII telemetry.

"How do you upload a picture to WeberWare 1.0?"

When you store the data from a WO-18 pass, name the file so that its file extension has a ".RAW" and put the file in the same directory in which WeberWare 1.0 resides. After you have invoked WeberWare 1.0 and the main menu comes up, you will see an option for "PACKETS TO PIXELS". Upon choosing that option, WeberWare will give

NASA 2-line Keplerian Elements

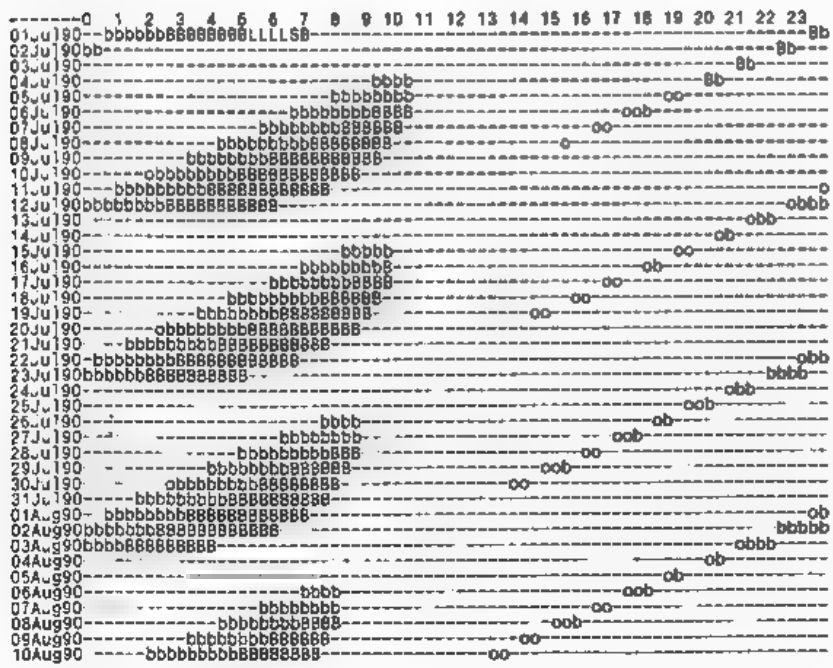
Posted by VK5AGR 3 June 1990

```
AO-10                  Epoch.......Drag......
1 14129U 83 58   B 90141.55893209 -.00000034  00000-0  0000000 0  5259
2 14129  25.9838 203.2065 5966345 144.7263 275.5441  2.05881342 52151
UO-11
1 14781U 84 21   B 90150.60681341  .00002274  00000-0  00000-0 0  7397
2 14781  97.9502 203.7363 0012427 309.2706  50.7376 14.65386404333392
MIR
1 16609U 86 17   A 90151.89394067  .00025638  00000-0  00000-0 0  7044
2 16609  51.6144  52.9043 0010267 351.6325   8.4458 15.60876417245554
RS-10/11
1 18129U 87 54   A 90150.88464022  .00000158  00000-0  00000-0 0  2069
2 18129  82.9265 341.3123 0012162 160.4836 199.6814 13.72090897147075
AO-13
1 19216U 88 51   B 90148.23246392  .00000105  00000-0  00000-0 0  1284
2 19216  56.9522 153.1540 6957743 228.0483  47.3201  2.09698248 14951
UO-14
1 20437U 90  5   B 90151.43733054 -.00002350  00000-0  00000-0 0  1538
2 20437  98.7024 227.5906 0010468 201.5841 158.4689 14.28616292 18471
UO-15
1 20438U 90  5   C 90147.46533688  .00000564  00000-0  24154-3 0   877
2 20438  98.7008 223.6190 0009592 211.4239 148.6369 14.28369234 17907
AO-16
1 20439U 90  5   D 90142.25412747  .00000692  00000-0  29135-3 0   801
2 20439  98.7039 218.5151 0010628 229.1515 130.8783 14.28715882 17162
DO-17
1 20440U 90  5   E 90150.23446723  .00000754  00000-0  00000-0 0   830
2 20440  98.7039 226.4855 0011009 204.9054 155.1593 14.28772891 18305
WO-18
1 20441U 90  5   F 90150.64496878  .00000667  00000-0  00000-0 0   835
2 20441  98.7040 226.9105 0011547 204.2814 155.7811 14.28671939 18363
LO-19
1 20442U 90  5   G 90150.63884055  .00000694  00000-0  00000-0 0   833
2 20442  98.7046 226.9194 0011741 205.3066 154.7526 14.28941027 18363
FO-20
1 20479J 90 13   C 90144.15135168  .00000003  00000-0  00000-0 0   751
2 20479  99.0426 195.1993 0541743 102.9595 263.2557 12.83155784 13666
         Inclin..RAAN.....Eccen...ArgPeri..MeanAnom.MeanMotion..Orb.
```

NOTE: FO-20 ident number is now 20479 (instead of 20480)

Satellite Schedule

Satellite: AO-13 **Station: Adelaide** **Hour – UCT**



you a choice of all files that have file extensions " RAW"

Chris Williams (WA3PSD) of Weber State University (WSU) points out that a complete picture file will take up about 156 Kbytes in a disk file , According to Chris, one can quickly start to run out of hard disk space in a HURRY!

AO-13 And AO-10 Transponder Schedules

(From AMSAT News Service Bulletin 153 07, 2, 1990)

The present transponder schedule for AO-13 (effective 5 May 90) is as follows:

Mode-B	: MA 000 to MA 100
Mode-JL	: MA 100 to MA 125
Mode-LS	MA 125 to MA 130 (Mode S Beacon only)
Mode-S	: MA 130 to MA 135
Mode-BS	MA 135 to MA 140
Mode-B	: MA 140- to MA 256
Omnia	: MA 220 to MA 040

The best estimate of the current attitude is: BLON = 179 and BLAT = -2 1 for 04 Jun 90 Cross mode B and S QSOs are possible during MA 135 to 140

AO-10's Mode-B Transponder Now Available For Use

AMSAT-OSCAR-10 appears to be receiving sufficient solar panel illumination to support Mode-B transponder operations, therefore, the transponder is available for general use whenever AO-10 is in view at your location. Please DO NOT use the transponder if the signals are FMing. The current estimate of AO-10's attitude is LON 24 deg LAT-9 deg.

FO-20 Keeps Status

The good news is that NASA is now tracking both Fuji OSCAR-20 and the DEBUT spacecraft and publishing orbital elements for the two.

The bad news is that NASA/NORAD has swapped tracking data with names. FO-20 is Catalog number 20480, Intl number 90-13C DEBUT is Catalog number 20479, Intl number 90-13B

** The element set distributed by AMSAT for FO-20 contains the correct elements for that satellite **

However, if you use the NASA 2-line sets, you will need to use the numbers listed for DEBUT

If this is confusing, just remember that FO-20 is faster than DEBUT (look at Mean motion) FL-20 rises earlier, so that should lead you to the correct element set

These results are based on Closest Point of Approach (CPA) observations and analysis. Anyone observing any differences or corrections, please contact the AMSAT Orbital Data Manager by mail or packet

Dick Campbell, N3FKV @ W5XO
AMSAT Orbital Data Manager

(What this means is that FO-20 Keplerian element sets will now use the number 20479, so if you use the autoload facility in InstantTrack or similar, delete your old set containing the "old" number 20480 first — Maurie VK5EA).

Satellite Activity for March/April 1990

1. Launches

The following launching announcements have been received

Int'l No	Satellite	Date	Nation	Period min	Apg km	Prg km	Inc deg
1990							
025A	USA-54	Mar 26	USA	354.9	20284	169	37 6
026A	COSMOS 2063	Mar 27	USSR	11h49m	39346	602	62.9
027A	OEFQ 2	Apr 03	Israel	102.5	1577	209	143 2
028A	PEGSAT	Apr 05	USA	96.4	682	500	94 1
028B	USA-55	Apr 05	USA	96.3	673	498	94.1
029A	COSMOS 2064						
TO	TO	Apr 06	USSR	115.0	1495	1437	74.0
029H	COSMOS 2071						
030A	ASIASAT-1	Apr 07	China	1436.2	35789	35786	0 1
031A	USA-56	Apr 11	USA				
031B	USA-57	Apr 11	USA				
031C	USA-58	Apr 11	USA				
032A	FOTON 3	Apr 11	USSR	90.5	389	225	62 9
033A	COSMOS 2072	Apr 13	USSR	89.0	248	189	64.8
034A	PALAPA-B2R	Apr 13	Indonesia	1485.7	37785	35717	0.4
035A	COSMOS 2073	Apr 17	USSR	88.7	267	189	82.3
036A	COSMOS 2074	Apr 20	USSR	104.9	1016	982	83 0
037A	STS-31	Apr 24	USA				

2. Returns

During the period fifty objects decayed including the following satellites:-

1983-033A	ROHINI 3	Apr 19
1984-127A	COSMOS 1615	Apr 15
1988-045A	COSMOS 1949	Apr 23
1988-065A	COSMOS 1960	Apr 03
1990-024A	COSMOS 2062	Apr 05

3 Notes

1990-027I OFEQ 2 was launched in Israel.
1990-028A PEGSAT was launched using the winged Pegasus rocket booster released from an airborne plane
1990-030A ASIASAT-1, a U.S. built telecommunications satellite was launched by China for the Asia Satellite Communications Company

BOB ARNOLD VK3ZBB

Phase III-D Design Meeting

(From AMSAT News Service Bulletin 125.06, May 5, 1990)

Preliminary Design Review for New Satellite Held in Germany.

Amateurs from around the world who are involved in the Radio Amateur Satellite Service are meeting in Marburg, West Germany from May 7 through May 9 to begin work on another major amateur satellite project. The purpose of the meeting is to set specific design goals for Phase III-D. The three days of meetings will cover a wide range of topics. Areas to be discussed will include: launch opportunities, orbit choices and constraints, transponder choices, antenna design, on-board computer systems, and propulsion systems. In addition to setting hardware and software design goals, equally important discussions will focus on labour division between groups, monetary commitment required, and development of a communication structure between groups involved in the program.

Mouse Driver Problem With InstantTrack

(From AMSAT News Service Bulletin 132.03, May 12, 1990)

Microsoft Software Found To Cause Intermittent Problems

Some InstantTrack users have recently discovered a problem where the map "goes away" or "freezes" when they use their mouse. InstantTrack's author Franklin Antonio (N6NKF) has determined that this problem is a result of a conflict with the Microsoft mouse driver (MOUSE.COM) versions 7.00, 7.01, 7.02 and 7.03. Changing to a mouse driver version earlier than 7.00 or later than 7.03 is the cure. An update of InstantTrack is not required to resolve this problem.

Microsoft is aware of the problem, as it occurs with many programs other than InstantTrack. InstantTrack users who are experiencing this problem should contact Microsoft and ask to obtain version 7.04 of MOUSE.COM.

73s FROM MAURIE VK5EA

EDUCATION NOTES

BRENDA EDMONDS VK3KT
EDUCATION COORDINATOR

I have now received some reports of examinations run under the devolved system, and am aware that there are new callsigns on air as a result of some of these

Most comments so far collected have been favourable, the examination conditions were good, the organisations were efficient and few problems were encountered.

However I do not as yet have any sort of overview of what is happening throughout Australia. I feel I need a lot more information about arrangements in all Divisions, and examinations run that have not been under WIA supervision. I will have a meeting with DoTC as soon as possible to discuss the progress of devolvement, so would greatly appreciate feedback from all sources, both examiners and candidates, so that any unforeseen problems can be aired, and further planning or refining of the existing system can occur

I have asked each Division to collect some information for me, so that time can be allocated at the July Weekend Executive meeting to discussion and planning, and to defining more clearly the roles of the Divisions and of the Federal Co-ordinator. I intend also to request some of this information from bodies known to have conducted or planning to conduct examinations on their own behalf, and so would obviously be pleased to hear from any examining body which does not hear from me within a few weeks. If you do not hear, that means I do not know of your exstence.

Please note, I am not trying to interfere in your activities or override your authority. I am simply trying to collect items which should be raised with DoTC, and to start a central register of where information is held. I would especially like to know what records each examiner maintains about questions, papers, candidate pass/fail rates and application rates for each section of the examinations.

From some remarks I have heard, there seems to have been a bit of a communication gap between the various sections of DoTC, eg between Canberra and the State Offices, in the early stages. I think much of this has been overcome, but please tell me if this caused problems. I am assuming that each examiner has been notifying the local State Office of each intended examination, but some of the information seems to have got lost at times.

My congratulations to those bodies which have recently run successful examinations . I know it has been much work by few very dedicated persons. Tell me if there is any way in which I can help you now or in the future.

ar

FTAC NEWS

JOHN MARTIN VK3ZJC
3 VERNAL AVE MITCHAM 3132

Data Base

Thanks to the Divisions and individual amateurs who have helped with information. VK4XRL corrects the input frequency of the VK4RTV ATV repeater to 444.250 MHz.

Band Plan Changes

Comments would be appreciated on a proposal to make a slight rearrangement of the EME segment and calling frequencies on all bands from two metres up. The proposal is:

(1) 2m, 70cm, 23cm and 13cm bands:
Extend the EME allocation to 50 kHz at 144, 432, 1296 and 2304 MHz. Drop the .050 DX M/S calling frequency — it is used only on six metres. Move the CW calling frequency up to 144.05, 432.05, 1296.05 and 2304.05 MHz. Thus bisected the DX segment of each band with 50 kHz each for EME and terrestrial DX.

(2) Higher bands.
Due to doppler shift, larger EME segments are needed on these bands, and the level of activity does not justify as many calling frequencies. The proposal is to extend the EME segments on these bands to 100 kHz either side of 3456, 5760 MHz etc, and retain only two all-mode calling frequencies (3456.1, 5760.1 etc (primary) and 3456.2, 5760.2 etc (secondary).

Microwave Activity Register

Thanks to the following amateurs for supplying information: VK2DVW, VK4CAV, VK4EKA, VK4XRL, VK5KK, VK5ZEM. The register now lists the following numbers of active stations:

23 cm: VK1 7; VK2 4; VK3 38; VK4 3; VK5 10; VK6 3, VK7 6.

Higher bands, nationwide: 2300 MHz 19; 3300 MHz 9; 5650 MHz 7; 10 GHz 14.

There are obviously far more than this, and VK3 certainly needs to be pulled down from its commanding lead on 1296! So, if you are active on the higher bands or know anyone who is, please write in. If we can get a reasonably complete list it can be published to help microwave users keep in touch with each other, as well as helping the WARC '92 team in its planning.

1296 MHz FM

Some 1296MHz operators are using transverters from two metres and cannot operate outside the 1296-1300MHz range. A number of VK3 operators have adopted 1298.1 MHz as an unofficial FM net for transverter users.

ar

SPOTLIGHT ON SWLing

ROBIN L HARWOOD VK7RH
52 CONNAUGHT CRES WEST LAUNCESTON 7250

Well, half of 1990 has already slipped by and activity on the various bands has been hectic as the political situation, particularly within Eastern Europe, has continued to be extremely interesting. Since the revolutionary changes in that region, the different international broadcasters have made greater efforts to improve their output, particularly as the listener response has dramatically improved

One international broadcaster that has been concentrating on the Eastern European countries exclusively has been Radio Free Europe in Munich, West Germany Now the US Government, which has been funding its operations, is seriously re-evaluating whether it should continue to broadcast since the emergence of a strong independent broadcasting infrastructure in the region. A recent presidential commission has reported that there appears to be no need to continue Radio Free Europe, although the companion Radio Liberty could continue Radio Liberty broadcasts to the USSR exclusively in the languages of that vast nation. Both stations share the same facilities and were subject to heavy jamming until December 1988.

In last month's column, I did mention that Radio Prague had ceased broadcasting its international service. Now the station reappeared on 7th May and, as I stated in last month's column, personnel alterations have been made, with some voices no longer heard. The station has also changed its callsign to Radio Prague International. They have made substantial alterations to their previously released schedule, concentrating on European audiences, although I have seen reports that the North American service is operational Their Spanish service seems also to be in limbo, particularly as that seems to be the section where most changes to their staff were made.

Another station that has changed its callsign is Radio Bucharest, Romania. It is now known as Radio Romania International. There doesn't appear to be any schedule alterations, either.

As it is now mid-winter, reception is excellent in the daytime on HF circuits. I do find it much easier to tune around the various allocations without any jamming. It also seems to be better this year from last year, particularly down on the lower frequencies, with European signals over the polar path, around my local midday period.

I am noting on various non-amateur frequencies, packet signals, and suspect that these may be pirate operations. There is one net around 27 612 MHz in French with several stations in Europe and the Indian Ocean

Judging by their headers, they don't appear legitimate. I have also heard packet signals around 10 3 MHz, and I don't know if they are legitimate or perhaps connected with the 27 MHz suspicious operations.

By the way, there are SWL files on your local packet BBS There was one file on schedules of international stations, easily heard here in Australia I was able to make use of it when I had a borrowed packet TNC Hopefully, I will be back among the packeteers shortly.

Last year, we gained a new pastor in our congregation and it wasn't too long before we both realised we had something in common He is an active ham ,with the call of VK7BE The perplexed members of our little flock have been hearing us discussing delta-loops, quads, DX, QSLs, FT200 etc, and have been wondering if we belong to some esoteric sect. By now, I should have in place a delta loop at this QTH, based on a successful design by my pastor

Well, that is all for this month. All the very best of listening and good propagation

73 DE VK7RH.

ar

INTRUDER WATCH

GORDON LOVEDAY VK4KAL FEDERAL INTRUDER WATCH CO-ORDINATOR
'AVIEMORE' RUBYVALE 4702

During the last 12 months some new ideas have been put in position to improve the input to DOTC — some have been noted by observers, as the log sheets show, eg, the number of times heard during the month, but only a few observers have bothered to include the length of time the intruder was heard. This is important also. It will give the DOTC monitor staff a chance to concentrate on those intruders they have a chance to remove from the bands. DOTC will only monitor those intruders who occupy our bands for long periods of time. It is impracticable to investigate a single logging of short duration.

It is interesting to look back (1982) and find some persistent intruders still with us. Some have left by their own accord (maybe) or by our combined efforts (?). We still have VRQ on 14075/80 kHz Vietnamese News Agency on A1A. UMS on 14141/14171/18152/21032 kHz plus a couple of newcomers, RGT77 on 14148 is also USSR Naval. The seasonal shift brings many of these into prominence Many intruders are constantly changing their frequencies.

I must draw attention to FSK ... it is often heard as a constant NON signal, and may break into unintelligible CW. Tune up about 500 Hz and the call should be readily identified (if it has one). Sometimes, if you tune to the lower side, you will often hear a jumble of letters. If you write these down in "dots" and "dashes" with appropriate spacing, it will decipher out, eg, VU2BNC (a beacon station) will sound like "BD DE ET VIAA"!

My final remarks are directed along the lines of Ian VK3ALZ (AR May 1990 P 51). I feel the same way It is the younger generation who must really fight for the bands they occupy now I also did my share of "lobbying and fighting for 6 metres back in 1958-59, then as VK4ZBI What ails the younger generation? Are they frightened of failing, I wonder? We all started the hard way, some more so, than others; so take advantage of the experience we have to offer, NOW

To Beth Gott, I convey my deepest sympathy. Ken was looking forward to adding his weight to the Special Survey; that was not to be

ar

Modified Summary April 1990

Freq	UTC	Date	Logsx	EMN	I D	Comments
7002.5	1150+	2003	5	A1A	"V"	
10150	1125	2703	4	A3E	-	Chinese Lang B/cast
14023.5	0630+	2203	25	F1B	-	250 Hz 3rd register
14046	mni	mni	30	mni	-	24 hr Radio Telephone
14058+/-	daily	daily	55	"	-	24 hr op "HELSCHREIBER" China??
14071/75	mni	mni	49	A1A	VRQ	Vietnam
14211.5	"	"	24	F1B	-	250 Hz 3rd Reg shift Txt in cyph
14215	1000+	120490	7	A1A	EH6	A new one???
14217.5	mni	mni	23	F1 CW	-	& F1B 250 Hz 3rd register
21315	0500+	030490	8	A3E	-	Rad Moscow 2nd prog to Russia
	3rd Harmonic of 7105 MHz					
Because of good condx we have a proliferation of Radio Moscow on 21 405/450						
logging			88	A3E		
Also 3rd harmonic of 4.990 MHz				"		24.950 possibly China
28.280 up Radio Moscow 36+			"			All 3rd Harmonics

REPEATER LINK

WILL MCGHIE VK6UU
21 WATERLOO CRES LESMURDIE 6076

Repeater Audio

The retransmitted audio from a repeater can vary from repeater to repeater It is important that audio quality through a repeater system be as good as possible for several reasons. Most important of all is listener comfort. Poor quality audio causes fatigue and loss of intelligibility To tell how well your repeater does on audio quality compare the audio direct and as retransmitted If there is a reduction in the quality of the audio the most likely causes are off frequency, incorrect deviation etc, or it could be that the repeater transmitter has a phase modulator It is difficult to achieve good frequency response and low distortion with a phase modulator for the following reasons. Firstly a phase modulator has a rising frequency response For the same input level a 2 kHz tone produces twice the deviation of a 1 kHz tone. This means that a phase modulated repeater transmitter does not reproduce the low frequency content and the audio sounds thin. You would think frequency compensation would solve the problem but the amount of low frequency boost required, about 20 dB, over drives the phase modulator and results in distortion. An understanding of how phase modulation is produced is required to understand its limitations Distortion increases as deviation increases. Even at 5 kHz deviation on 2m distortion is as high as 15% The distortion level is frequency dependent and can be almost 100% at low frequencies. The end result of all this is thin sounding distorted audio. The solution to this problem is to direct frequency-modulate the repeater transmitter. Frequency modulation has a flat frequency response at much lower distortion. In fact, a flat frequency response is not what is required from the repeater a transmitter Pre-emphasis is required when direct FM is to be used. Attention to good audio through our repeater systems will become more important as repeaters are linked together because the resulting distortion can only increase as the number of systems linked together increases.

2 Metre Duplexer

In order to understand your duplexer, let's learn some of its limitations Firstly it introduces a loss of about 2 dB into your repeater system on receive and transmit. So 10 Watts is reduced to about 6.5 Watts, or a 10 µV signal to about 8 µV The very best duplexer of this type will have an insertion loss of 1 dB, but silver plating is required, so 2 dB is a realistic loss

The duplexer will not improve your repeater if the best of the previous two aerials is used. It can't even equal it because of the 2 dB loss. The duplexer will only improve your repeater system if previously it was being de-sensed due to aerial placement.

Reject attenuation is about 100 dB and that's a lot of dBs! — So isolation between the repeater's receiver and transmitter must be very good. To test if there is enough RX-TX isolation, connect a well shielded dummy load to the TX and a slightly noisy signal from a shielded signal generator, and key the transmitter on and off. There should be no change in the noise level of the receiver. If the noise level increases, your duplexer will not fix it.

The coax used to connect the duplexer to the receiver and transmitter should be double screened, or one with a good quality braid. (Remember the better than 100 dB isolation). The coax from the duplexer to the aerial does not need to be double screened.

Noise output 600 kHz from the transmit frequency should be better than 80 dB down from the transmitter output (0.1 µW). Valve transmitters can be 40 dB better

The receiver should have a dynamic range of 80 dB or better. ie a signal 600 kHz away from its receive frequency and 80 dB stronger than the weakest signal you can receive (about 0.1 µV) causes no de-sensing. A very good dynamic range of 115 dB is possible with solid state receivers Front end tuned circuits have no effect on the dynamic range of a receiver with a signal only 600 kHz away. Even many tuned circuits in the average receiver all tuned to the same frequency are several MHz wide

When the duplexer is first connected to the aerial, de-sensing may occur even though the receiver and transmitter are OK. It may be that the duplexer has drifted (this will be covered later), but if this is not so, it may be the aerial! This can be a very big problem, which is not evident on the split aerial system Assuming the aerial has a good SWR (better than 1.5:1), the problem is poor and/or intermittent connections in the aerial structure. Aluminium, in particular, develops corrosion joints which act like a diode detector, producing wide-band white noise, which de-senses the receiver. Don't forget the aerial is both receiver and transmitter It has about 20 volts of RF applied to it, and 0.4% away in frequency it is trying to receive a 1 µV or less signal Even poor joints on masts and other nearby metal objects will cause considerable de-sensing. Often this type of aerial or mast de-sensing is intermittent. To test for this type, replace the aerial with a good dummy load If the problem goes, then your aerial or mast etc is causing the de-sensing. Solution is to solder or weld all joints, but if this is not possible, then clean thoroughly and apply

Alminox. The aerial mounting to the tower may be easier to insulate, rather than trying to achieve a good noise free connection. Please note this problem can be a big one, so the very best aerial system is needed.

Duplexer tuning is difficult, because there are three variables in each cavity filter. These are the amount of coupling ie the closeness of the coupling loops to the 1/4 wave resonator, the amount of L or C and the frequency to which the cavity is tuned. All of these three variables interact with one another. The easiest way to check the tuning of the duplexer is to take one of the receive filters out of circuit so some de-sensing is noticed, and adjust the other two for minimum de-sensing. Repeat with the filter that was taken out of circuit back in circuit, and one of the just-adjusted filters now out of circuit. Repeat with the Tx filters. An S meter on the repeater receiver can be most useful when making this adjustment, but a weak signal and the filters adjusted for minimum de-sensing (best quieting) are OK. Adjustment to the tuning should, if required only be a fraction of a turn, as half a turn shifts the notch several hundred kHz!

This brings us to another important point. The duplexer is a NOTCH FILTER, so it passes all frequencies except for a very narrow band. Any spurious output from the Tx will receive very little attenuation, at the best 10 dB.

Packet Radio

Amateurs seem to be in two camps when it comes to Packet Radio. If you use Packet Radio, you love it, and wonder what life could be without it. If you have never seen what Packet Radio is all about, the comment is often about that interfering noise on HF! Amateurs who have not seen what Packet Radio is doing in the way of information exchange, be it personal messages or general bulletins, are missing out on the greatest way of being in touch with what is happening in Amateur Radio. Packet Radio has done a poor job of showing amateurs what Packet Radio is all about. Not all amateurs are computer orientated, and as soon as Packet Radio is mentioned thoughts of a language that many of us do not understand spring to mind. It may come as a surprise to Packeters, but not all amateurs know what a BBS is, or a Digipeater is, or what a vast world-wide network exists via Packet Radio. Many amateurs assume that, to be part of the Packet Radio scene, you must have a computer with all the add-ons. Well, it is true that a computer is the most versatile way to tap into Packet Radio, but a $50 terminal and a $200 TNC is all that is needed. When I first became interested in Packet Radio after seeing it at a fellow amateur's QTH, I talked to many who were into Packet Radio, and usually ended up with more questions than answers. But the leap into Packet Radio was made, and I cannot say enough about it. It is not a QSO medium, but as an information and keeping in touch medium, it is fantastic. ar

RANDOM RADIATORS

RON FISHER VK3OM
RON COOK VK3AFW

I hope by now that many of our readers are happy Z Match users and this month I want to look at some simple but effective antennas that can be used with the Z Match.

But first I would like to add a thought to the Z Match article and also add a few thoughts from some of our readers.

Firstly I had a query on how to use the Z Match with a random wire or single wire fed antenna. Simple. Just connect the antenna to one of the output terminals and a good earth connection to the other. I must admit that even a poor earth connection might work, but don't be surprised (you might be) if you feel a few RF tingles from the key or microphone. In an extreme situation you might even get RF feedback on your transmitted audio, so try it and see.

I have also been asked if the Z Match can be used on 160 metres. The answer to this is yes, but a few modifications are required first. I am working on this one and will report back soon.

A letter from Maurie Phillips VK5ZU makes some interesting points. Maurie says, "I have built several along the lines you have described with one major difference. I used preformed coils supplied by William Willis & Co and found them ideal. Their No 4.08 is one inch in diameter with eight turns per inch and this fits snugly inside their No 5.08 which is 1 1/4 diameter with eight turns per inch. I used for L1, 10 turns and L2, 9 turns, L3, 12 turns and L4, 10 turns".

This sounds like a good idea Maurie, however I am not sure what the position is to obtain these coils as William Willis is now out of business. No doubt there are still plenty of their coils around in junk boxes.

Maurie also supplies an idea on how to make your own open wire feeder. He uses 40/.0076 single core PVC insulated copper wire with sections of nylon tube as the spacer. Maurie enclosed a sample and it looked good. He says that the finished product hangs very neatly.

I've noted that a few people have had trouble with arcing in the capacitors when running 100 watts of power. Assuming that you are using the specified capacitors, then the trouble is almost certainly foreign matter in the capacitor plates. You need to remember that they are probably the best part of forty years old and after that period of time lying around in the junk box a certain amount of muck gets in. The answer, give them a good wash. I find that a couple of runs through the dishwasher works wonders.

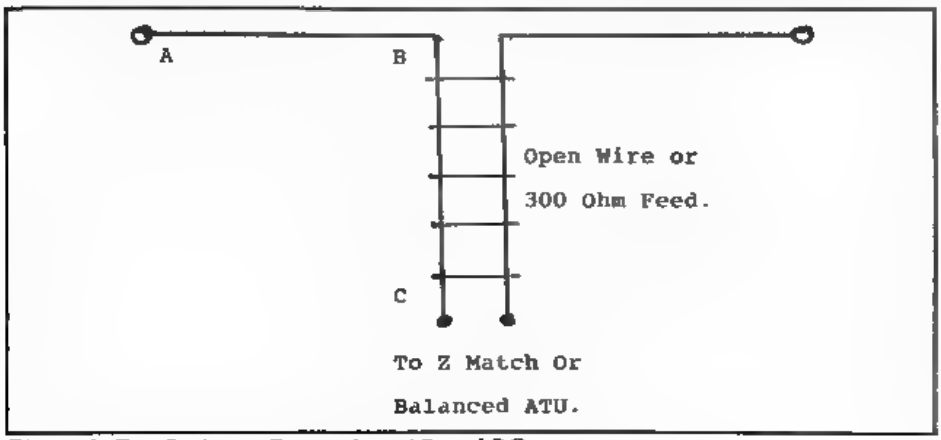


Figure 1. For Optimum Dimensions AB and BC see text.

Picking The Right Feeder Length

While the Z Match will tune up just about anything, there are limits. If you can choose a length of antenna and feeder that will produce a reasonable impedance, the ATU will tune up much easier. I came across an article in the July 1986 CQ magazine that gives all the required answers. While the article referred to the G5RV antenna, the principle applies to any balanced antenna fed with tuned feeders and a Z Match ATU, and by the way, a G5RV fed with open wire line and a Z Match makes an excellent all band antenna.

I have always found that the G5RV fed with the usual 300 Ohm feeder into a coax line to be a rather difficult antenna to get going. Of course you will always find someone who has got one going with a low SWR on all bands by shortening this or lengthening that, but it seems that no two are alike. Run your 300

Ohm feeder into the shack and then into the Z Match and you have an antenna that will work well on all frequencies. As we shall see later, the length of the actual antenna can be changed to suit different requirements.

The chart to calculate your feeder and flat top lengths is easy to follow, but I should emphasise that you should try a suitable length first and see if it will tune up. If not try the formula and modify your dimensions.

The Extended Double Zepp

This is a very technical sounding term for what is really a very simple antenna that has been around for the last sixty years or so. Of course the antenna can be designed for any frequency, but we will look at one for the twenty metre band.

Firstly, what is an extended double zepp? It's an antenna in which each half of the dipole is 0.64 wavelength long. This means that the overall length is in fact something over two half waves long. By effectively separating the two half waves by 0.28 wavelength, we can achieve an overall gain of 3dB in the broadside direction. In practice, this is not too far behind a three element triband beam. Of course, the double extended zepp is a bidirectional antenna. There is no front to back ratio. The additional lengths between the half wave ends and the feeder connection points carry RF currents which are opposite in phase to the main currents in the two half wave sections, and this gives four small lobes at about 35 degrees to the length of the antenna. The 3dB gain is however in the two major lobes at right angles to the wire.

This antenna must be fed with either open wire line or low loss 300 Ohm ribbon. However the story doesn't end there. The antenna will work very well on other bands. On 80 metres it will be a little down on a half wave dipole but will still perform very well. On 40, it will be a little better than a half wave dipole while on 30 metres it will have a useful gain as it is nearly two half waves in phase. On the higher bands the lobes will split into something like a figure eight pattern, but will still give useful radiation in a variety of directions.

If you have a space problem, this antenna might be just what you are looking for. Of course if you want to achieve the maximum gain, the antenna should be placed at a minimum height of about 10 metres. Anything lower and the radiation will be at high angles which are not conducive to good DX working.

I consider that the 3dB gain of the extended zepp is about as much as you can expect with a simple wire antenna. It is of course possible to achieve more, but the law of diminishing returns takes over and the antenna size increases out of proportion to the extra gain obtained.

The following lead-in lengths result in a resonant length that is within 0.05 of maximum off resonance

Feet	Inches	Feet	Inches	Feet	Inches
4	3	4	4	4	5
4	6	4	7	4	8
4	9	4	10	4	11
5	0	5	1	68	11
69	0	69	1	69	2
69	3	69	4	69	5
69	6	69	7	69	8
69	9	180	3	180	4
180	5	180	6	180	7
180	8	180	9	180	10
180	11	181	0	181	1

Fig 2 G5RV optimum dimensions. Surprisingly, the 33 foot feeder usually used with the G5RV does not appear in the table. Indeed lengths around 69 and 181 feet may be closer to the ideal.

In the case of the G5RV, it is best to cut the feeder so that its length plus the 51 feet of the flat top would not be an even multiple of 16 feet for 80, 40, 20 or 10 metres. The idea is to get a combination of lengths AB plus BC which when divided by 16 and 22 will produce an answer as close as possible to a "point-5" response (such as 5.5, 8.4, 3.6 etc) and as far as possible from "point-0" response (such as 7.0, 4.1, 6.9 etc).

While the figures apply to the classic G5RV with a 102 foot flat top you can of course apply the formula to any balanced antenna with a tuned feeder.

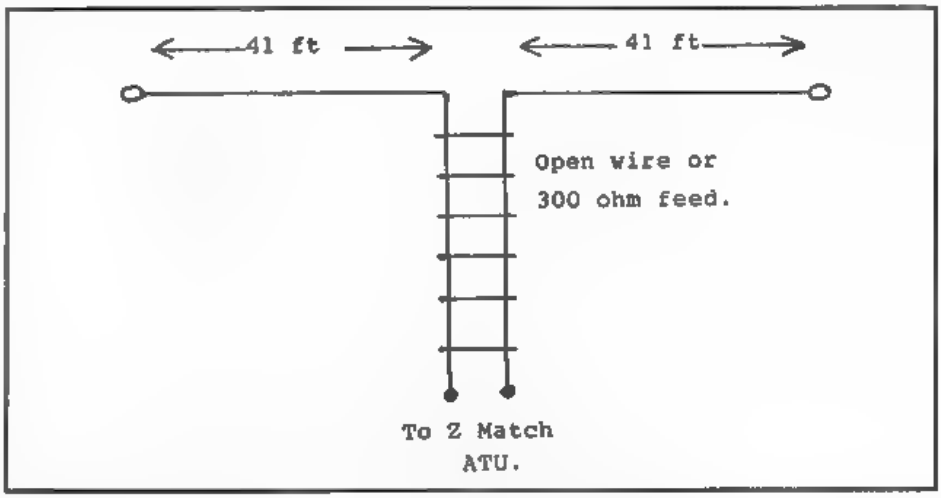


Fig 3. The dimensions for the twenty metre extended double zepp.

Balanced Feeders. Or Are They?

While on the subject of balanced feeders and balanced output ATUs, I noticed an article in the February issue of QST by Richard L. Measures, AG6K. He says."Now that we have nine amateur radio bands below 30 MHz (not all harmonically related) an open wire line, centre fed wire antenna looks even more attractive than it did when such antennas first came into popular use in the 1930s when we only had five bands below 30 MHz. Taking advantage of this versatile system requires a box that will interface the 50 Ohms unbalanced output of today's transceivers to the highly variable impedance (Z) of the balanced feed points of such multiband antennas".

However Richard considers that most of the current crop of "match anything" ATUs often produce only a semi-balanced output, and the results are often less than perfect. As we pointed out in the last edition of this column, baluns and unmatched loads don't always go well together. The problem is that most commercial ATUs use a balun to provide a balanced output.

Richard continues, "Antenna tuners are like shovels. It takes more than one kind to perform a variety of jobs effectively. A balanced line tuner should be designed – from the ground up — for the job it is intended to do". The commercial "match everything" tuners produce unbalanced currents in the balanced feed system which can lead to problems like TVI and odd radiation patterns from the antenna. Richard then goes on to describe a balanced ATU capable of handling around 1.5 kW. I think I will stick to my Z Match.

That's all for this month, we will be back in two months with more antenna ideas for you to try. **ar**

ALARA

Joy Collis VK2EBX
PO Box 22 Yeoval 2868

Annual General Meeting

It was gratifying to hear such a large group of members, and some non-members, on the Annual General Meeting Net on 28th May. To those recently licensed, we were very pleased to welcome you, and hope you will join us on Monday evenings for the normal ALARA Net, and a chat. If you are not hearing everybody, I'm sure someone will be happy to relay for you. It was also good to hear some of the members who do not manage to be with us very often.

A point raised by one of our new members was the matter of using phonetics when giving callsigns on an official net. As she said, it does make things easier for newcomers, particularly when conditions are poor, if callsigns are pronounced phonetically, at least during the first round or two.

Sometimes the "regulars" tend to forget how confusing the whole thing can be to newcomers, and how easily we can deter them from joining in if we fail to give sufficient thought to the way we operate.

Office Bearers 1990:

President	Jenny Warrington VK5ANW
Immediate Past President	
Historian	
Contest Manager	Marilyn Syme VK3DMS
Vice President	Maria McLeod VK5BMT
Vice President	
Minute Secretary	Christine Taylor VK5CTY
Secretary	Meg Box VK5AOV
Treasurer	
Souvenir Custodian	Val Rickaby VK4VR
Publicity Officer	Joy Collis VK2EBX
Awards Custodian	Mavis Stafford VK3KS
Librarian	Kim Wilson VK3CYL
Sponsorship Secretary	Gwen Tilson VK3DYL
Newsletter Editor	Bron Brown VK3DYF

State Representatives:

VK1/2	Joy Collis	VK2EBX
VK3	Bron Brown	VK3DYF
VK4	Margaret Schwerin	VK4AOE
VK5/8	Maria McLeod	VK5BMT
VK6	Poppy Bradshaw	VK6YF
VK7	Helene Dowd	VK7HD

Welcome back to Margaret VK4AOE and Poppy VK6YF, VK4 and VK6 State Representatives respectively. Our thanks to Josie VK4VG and Bev VK6DE, the previous holders of these positions.

A vote of thanks was given to Jenny VK5ANW for her efficient handling of first year as President.

BYLARA Contest

BYLARA is giving consideration to extending its contest to make it possible for overseas YLs to participate and would like some opinions, particularly from DX YLs who have not previously been able to join in. If you have any ideas about this please write to the BYLARA Secretary.

Sandie Franchi F1LXM
59 Hunters Place
Westlands, Droitwich, Worcestershire
UK WR9 9HD

YL Activity Day

Diana G4EZI says:

"YLs around the world are remembering to come on for YL Activity Day, so do let's try to be QRV on the sixth of the month! Talk to the OMs too, tell them about it, help them work for their YL awards, and maybe coax a shy XYL onto the band, which may bring a new enjoyment of radio to her. So keep it going girls!"

Joan VK3BJB

Joan VK3BJB is still very much involved with the Japanese and Japanese maritime mobile nets, and has come a long way since she first became interested, three or four years ago, in "learning a few basic conversation sentences in order to have "rubber stamp" QSOs with Japanese amateur radio operators".

The following quotes from local newspapers show that she is not only helping to keep amateur radio in the news, but rendering valuable assistance in emergencies:

"Mildura housewife, Mrs Joan Beevers, was last week involved in the search for a missing Japanese yacht off the coast of Chile.

Mrs Beevers is the controller, or key station, of a Japanese amateur maritime mobile network, and is often in contact with Japanese sailors throughout the world.

She was featured in a Sunraysia Daily article about a visiting lone Japanese sailor last week.

Mrs Beevers was listening in to the international yacht net two days ago when the Japanese yacht "Wahine" broadcast a may day message.

The yacht was floundering in six-metre waves and the winds were blowing hurricane force 12 (50-60 knots).

Mrs Beevers said the yacht was off the coast of Chile, heading south toward Cape Horn, when it issued the distress call.

All other operators were asked to clear the frequency and Mrs Beevers became the contact radio station between the yacht and the northern Japanese base station.

The Chilean Navy had sent a ship out and a search aircraft had voice contact with the yacht.

The Chilean naval vessel located and rescued the yacht's skipper, a Japanese man, and his American wife, about 5.20am on Saturday.

The couple's yacht was abandoned as the wild seas made its recovery impossible.

Mrs Beevers said the navy ship took the pair into port at Punta Arenas.

"I was happy to play a part," she said."

""Antarctica to Australia . . . are you there Joan?" This was a frequent question on international air waves during a recent visit to the oceans of the icy continent by lone Japanese yachtsman Yoshiya Katoaka. He was speaking to Mildura housewife Joan Beevers, known in yachting and shipping circles throughout the world. The two had spoken frequently, but had never met until this week in Mildura, when Yoshiya came ashore to present Joan with one of his favourite landscapes which he set up on time exposure. He had spoken to Mrs Beevers only hours before sailing into the winter wonderland."

YL Awards

JLRS issues a number of attractive awards, ranging from fairly easy to obtain to considerably more difficult:

YL-10 Certificate

Ten confirmed contacts with licensed YL operators in the world, including at least one Japanese YL. All contacts must be dated after 1st January 1953. Apply in accordance with GCR to Yoshie Kamine JJ1QMD, 4-13-17 Nakahara, Mitaka, Tokyo 181, Japan. Cost plus surface mail postage outside Japan — 10 IRCs. Endorsements: Stickers for each group of 10 additional YLs confirmed. (Contact with a Japanese YL not required for endorsements). Cost — three IRCs for each group of 10 additional contacts.

YL-Alphabet Certificate:

Twenty-six confirmed contacts with licensed YL operators. The last letters of the callsigns of the contacts should contain all 26 letters of the alphabet. No time limitation.

Two classes

Class A: contacts with JLRS members only

Class B: Contacts with YLs anywhere in the world including at least five Japanese YLs for operators outside Japan.

Apply in accordance with GCR to Tsuneko Watanabe JE1IWR, 5-15-2 Asahimachi, Alsungi-shi, Kanagawa-ken 243, Japan. Cost 10 IRCs.

CW Certificates:

(No time limitation)

YL-CW-AJD Certificate: Contact with a licensed YL in each of 10 districts in Japan

from 1 to 10.

YL-CW-WAJA Certificate: Contact with a licensed YL in each of 43 prefectures. Tokyo-to, Osaka-fu, Kyoto-fu and Hokkaido.

YL-CW-JCA Certificate: Contact with YLs in 10 different cities in Japan. Endorsements — each group of contacts with 10 additional different cities.

YL-CW-JDA Certificate: Contact with YLs in 10 different guns in Japan. Endorsements — each group of contacts with 10 additional different guns.

YL-CW-10 Certificate. Ten contacts with different licensed YLs anywhere in the world. Endorsements — each group of additional 10 contacts.

YL-CW-Alphabet Certificate: 26 contacts with licensed YL operators in the world. The last letters of the callsigns of the contacts should contain all 26 letters of the alphabet.

For all CW awards, apply in accordance with GCR to:

Nobuko Nishigori JA3UPR
2-6-11 Hirosedai, Kaai-machi,
Kitakatsuragi-gun, Nara-ken 636, Japan.

Cost — 10 IRCs. Certificates for multiband and each single band will be issued separately.

The Finnish Radio Amateur League offers one YL award: Finmaid Award:

Non-European stations need contacts with three OH-YL stations.

SWLs need 10 confirmations of their reports to OH-YLs.

Stations must be owned and operated by OH-YLs. QSOs after 18th July, 1947. Any band or mode, no endorsements. Contacts made with the same operator from different OH call areas count as separate stations.

Send list of contacts with usual log data and names of operators with statement that QSLs have been received. Fee — eight IRCs. Apply to:

SRAL, Award Manager,
Box 44, 004411
Helenski, Finland.

Bits and Pieces

For those lucky enough to work Kiyoko T3OKY on West Kiribati, the QSL information is: Kiyoko, Yamakami, PO Box 3, Tokaimura 31911, Japan.

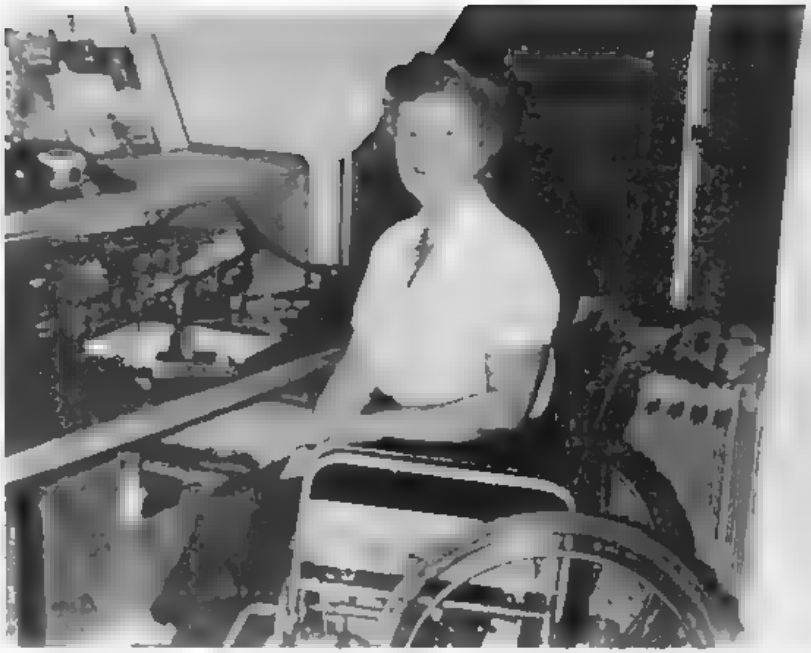
QSL information for Maria CU2YA is: Maria Pinheiro, PO Box 211, Sao Miguel 9503, Ponta Delgada, The Azores.

Jeanette ex VK4BZL is now VK6AZL, and living at Tom Price.

Congratulations to Christine VK5CTY on being appointed an accredited examiner.

Marlene ex VK5QO is now VK3EQO.

Congratulations to Pearl ZL1WY, who has been awarded the Myrtle Earland Memorial Rose Bowl as WARO Amateur of the Year.



Peggy VK6NKU pictured at her rig

New Members

A very warm welcome to: Sally VK4MDG, Paddy VK5ZBI, Susan XYL of VK5AIM, Margaret VK3END and DX member Sigrid DL3LG.

Wheelchair No Handicap

Peggy VK6NKU spent five years in a wheelchair after breaking her neck. This has not prevented her from actively participating in amateur radio activities, such as running the WA WICEN net, and more recently, since the WICEN boys erected a beam for her, working DX, and "having a ball".

She now only uses the wheelchair when she has to sit for any length of time, and as Peggy says "it reminds me that I am one of the lucky ones who make it out of the chair".

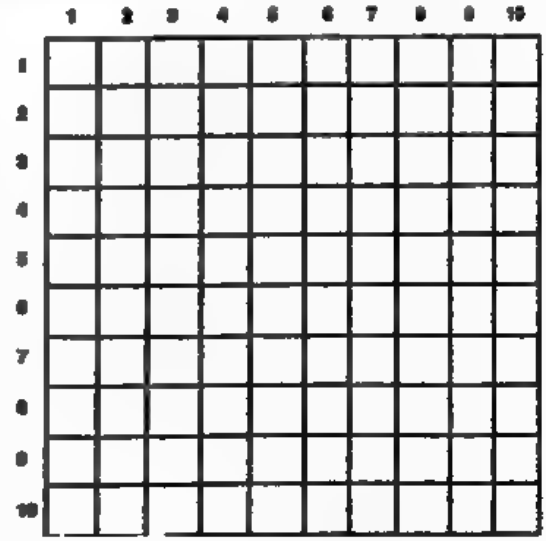
UNTIL NEXT MONTH, 73/33

Morseword No 40

Solution on page 56

Across
1 Dim
2 Lobe
3 Smooth fabric
4 French cheese
5 Secure
6 Not those
7 Therefore
8 Tailless cat
9 Willing
10 Mature

Down
1 Sell
2 Port side
3 Carry
4 Ankle
5 Egg on
6 Period of time
7 Donation
8 Junket ingredient
9 Spear
10 Boss



Audrey Ryan © 1990

DIVISIONAL NOTES

VK2 NOTES

TIM MILLS VK2ZTM

The NSW Division conducted its first devolved exams during May with 18 candidates. Most took up grade subjects like morse or higher theory. The next exam to be conducted by the Division at Amateur Radio House, Parramatta, will be Sunday the 12th August. The closing date for this exam will be Friday the 20th July.

Many other groups also chose May to conduct their first exams. The Divisional office is starting to be able to put together details about the various exam centres available, and where some of the gaps are in the lack of local points. Would your club or group please keep this information flowing into the office?

Any exam information or inquiry should be posted to PO Box 1066 Parramatta, NSW 2124. Phone to (02) 689 2417, where there is an answering machine (Phone answered 12 noon to 1pm Mon to Fri, and 7 to 9 pm Wed.) Fax, anytime, (02) 633 1525.

WICEN (NSW) Inc

The next Sydney based exercise is the "Sun Herald — City to Surf" fun run on Sunday morning the 12th August. Co-ordinator for this event is Brett VK2XMU. Leave inquiries via Parramatta office.

Divisional Voice Mailbox

An additional service has now been added to Divisional news by telephone. For some time there has been news headlines from an answering machine on (02) 651 1489. Now, thanks to AAP a test service has been set up with an interactive voice mailbox. Similar headlines to that on the older system can be obtained by dialing (02) 552 5188. If you have a push button phone you can control some of the functions, see details below. You may leave a message at the end of the text by following the instructions given by the mailbox. If you have a DTMF phone or one of the "tone senders" available from electronic stores or banking organisations you can obtain various functions by operating the buttons as follows

1. Message rewind. This steps back 10 seconds, and is handy if you miss an important date or phone number. Pressing "1" "1" in quick succession causes the message to rewind to the start.
2. Pause message. As the name suggests this will pause the message review. Pressing "2" a second time will restart it.
3. Advance message. This will advance the message by 10 seconds. Pressing "3" "3" in quick succession causes the message to advance to the end. This will also happen if you press the "hash" key.
4. Slow down review. This will slow down the replaying of a message.
5. Message information: This will tell you when the message was posted and by whom along with other information.
6. Speed up review: This will speed up the replaying of a message.
7. Not in use: Press this and nothings happens.
8. Volume normal: This sets the volume to the normal level.
9. Volume raise: This will increase the volume of a replayed message.

New Members

A warm welcome is extended to the following who were in the May/June intake.

A S Bryant	VK2YNI	Castle Hill
J R Cannon	VK2NJC	Kilaben Bay
M S Carney	VK2XRU	Blackett
J Conde	Assoc	Rose Bay
M P Conradi	VK2ETM	Wahronga
E Fossey	VK2JFY	Penrith
G R Flood	Assoc	Minto
S A Guignon	VK2MIU	Tascott
C Hart-Smith	VK2CHS	Matcham
A P Hunter	Assoc	Glebe
P Johnston	Assoc	North Curl Curl
J H Lean	VK2YX	Chiswick
J B I Nydahl	Assoc	Roselands
C J M Pattison	VK2NIK	Hornsby
A P Shipp	Assoc	Mt Kuring-gai
R A Plater	Assoc	Asquith
P J Wright	VK2YPW	Hurstville ar

VK2 WICEN

This year's City to Surf is again closing upon us. As usual operators are required. The event is being held on Sunday 12th August. The commander for this years event is Brett Wilkinson VK2XMU. You can contact him on (02) 661 5457 or on the weekly WICEN Net which is held every Thursday evening at 9pm local time in the Sydney area on repeaters 7150 and 8275. Alternatively he may be contacted via the VK2 Divisional Packet BBS on 4850.

VK3 NOTES

JIM LINTON VK3PC

WIA Victorian Division Council

Most of the team which formed the Divisional Council in 1989-90 had nominated for the 1990-91 Council, and no other nominations were received. Due to there being less than the maximum number needed to fill the council positions, they were elected ipso-facto. The new Council is Steve Harrington VK3BYI, Peter Mill VK3ZPP, Bill Trigg VK3JTW (Broadcast Officer), Barry Wilton VK3XV (Secretary), Jim Linton VK3PC (President), and Rob Hailey VK3XLZ (Treasurer). Steve and Peter continue in their role of providing technical expertise to Council, including maintenance of the WIA repeater network, and Bill, Barry and Jim also have other portfolio responsibilities.

Recruitment Campaigning Starts

Some members at the Division's Annual General Meeting voiced concern that they thought more could be done to increase the level of membership. Victoria had performed reasonably well with both its recruitment and retention of members, and some special initiatives are planned for the coming months.,

Your Division is taking a leading role in a co-ordinated nationwide campaign to recruit both new members into the WIA, and encourage new people to take up the hobby of amateur radio. Each individual member of WIA Victoria will have a part to play in the campaign — please become active when the call is made for your help in recruitment activities. Recruitment activity costs the current members money, and the results of each activity will be closely monitored to see if they're financially viable and achieving worthwhile results.

Examinations Go Well

The conduct of the first statewide examinations at centres throughout Victoria and in Albury has been described by all involved as an outstanding success.

The 193 exam results were posted to the 120 candidates within two weeks of the examinations on May 15. The candidates exam supervisors were provided by participating WIA member clubs and zones, and the Department of Transport and Communications were very complimentary about the conduct of the exams.

Drawing on the experience gained from the exercise, a review was conducted involving exam supervisors, and some refinements have been made to the examinations service.

WICEN Victoria Inc

The Divisional President Jim Linton VK3PC symbolically handed over the documentation for WICEN Victoria Incorporated at the Division's Annual General Meeting. The documents were received by WICEN State Co-ordinator, Mark Dods VK3ACX.

WICEN Victoria now has its own articles of incorporation. However it remains constitutionally linked to the WIA Victorian Division. The WICEN committee will consist of the State Co-ordinator (also known as the WICEN President under the constitution), four other

WICEN members, and five appointees nominated by the WIA Victorian Division Council.

The incorporation of WICEN was seen as necessary for it to continue the considerable progress made, since its resurgence resulting from the Ash Wednesday disaster. WIA Vic Div Secretary, Barry Wilton VK3XV, Mark, and his predecessor Leigh Baker VK3TP had worked steadily over the past year to draw up the constitution and see it through the long Corporate Affairs approval process.

The Council has unequivocal confidence in the management of WICEN into the foreseeable future. But, due to WICEN's importance to our hobby's role in serving the community, it was jointly decided by WICEN and the WIA Vic Div to leave the way open for a future Council to step in, if a situation warranted. Barry Wilton explained at the AGM — it was not Council's intention to meddle in the affairs of WICEN. Mark Dods said WICEN wanted to remain part of the WIA Victorian Division. **ar**

VK4 NOTES

ROSS MUTZELBURG VK4IY

Upon my recent return from an overseas holiday that included a visit to the Dayton Hamvention, I was informed of WICEN involvement in the April Charleville floods. The following report was supplied by Neil VK4NF and appeared in the Ipswich and District Radio Club Newsletter. I wish to acknowledge Neil and the Ipswich Club for the information.

Charleville WICEN Activation

On Sunday 22 April 1990 a meeting was called between the Dalby Town and Wambo Shire Councils, the Dalby Wambo SES units and two representatives of WICEN (namely Reg Kerslake VK4AQU and Neil Holmes VK4NF) to formulate an assistance package which Dalby could offer to Charleville. This was faxed down to Brisbane SES and on Monday afternoon 23 April this offer was accepted.

The necessary organisation took place, and on Wednesday morning 25 April (Anzac Day) at 6am a convoy of equipment left Dalby for Charleville, with VK4NF on board with his equipment. We stopped at Miles and picked up Maurie King VK4JJF and his equipment, and we finally arrived at Charleville at about 4pm.

I, VK4NF, set up my 80m dipole and was operational on 3.605 MHz at about 5pm. The following morning, Maurie made up an 80-40m combination antenna, and we set this up on the same portable pole as my dipole, and found that this antenna of Maurie's worked the best on both 80 and 40 metres, mainly due to the direction it was set up at.

We had good communications at all times using 7.075 during the day and 3.605 at night and early morning. We had several monitoring stations including Reg 4AQU, Ian 4NVF, Margaret 4AOE in Dalby, Harry 4ASF and a few others in Brisbane and the Gold Coast as well as a few others from further afield.

Our biggest problem was that we were set up at the Charleville showgrounds, and the other services were set up at the airport, and we had no direct link with them for passing information, except for a link with the Royal Flying Doctor Service temporarily set up on 4.98 MHz, which was handy, but not the most beneficial.

On Sunday 29 April the Wambo Shire and Dalby SES units decided to pull out and come home, so I VK4NF, decided to also come home, and left Maurie to man the fort. Up until then, we had handled about 25 different messages. At this stage, a lot of the telephone services were being put back into service, so our need was not so great.

As I write this (2 May) Maurie is still operating, and he will be there until Friday 4 May, when the Dalby Council crew intend to wind down their operations.

On Tuesday 1 May I sent out to Maurie a UHF CB which he promptly set up, and he now has communications with the SES control centre. Had I taken this set with us when we went out first, we would have been much better off as far as liaising with the other services was concerned.

A few things we learnt:

1. Consider direction when placing antennas.
2. Have plenty of power available ie 100 watts.
3. Check on what equipment and frequencies are being used by other services and be prepared accordingly.

The WIAQ would also like to thank DOTC Brisbane for their support in quickly providing verbal permission for Maurie VK4JJF to operate on the 7.075 MHz WICEN flood net when it became necessary. DOTC followed up that permission with a letter that speaks for itself.

Letter from DOTC

Amateur Operations During The Charleville Flood

Further to your letter and our subsequent conversation on the above-mentioned subject, I am happy to confirm the department's agreement to Mr Maurice King operating outside Novice conditions, on occasions, while assisting with the provision of communications to Charleville, pending full restoration of normal services. Specifically, I understand that at times it is necessary for Mr King to use 7.075 MHz in addition to the frequencies authorised by his licence.

I congratulate the amateur movement on the valuable service it has provided during this crisis and am pleased that the department has been able to assist in this small way.

Finally, thanks to those who have made donations to the WARC fund. Name withheld by request $100; Name withheld by request $100; Name withheld by request $100, Redcliff Radio Club $10; Brisbane North Radio Club $50.

Anyone wanting to match them will be very welcome! **ar**

5/8 WAVE

JENNIFER WARRINGTON VK5ANW

Historical Info Wanted

A few months ago, Lloyd Butler VK5BR volunteered to become the Historian of the Adelaide Hills Amateur Radio Society, with the idea of eventually publishing an article, like the one he did on Murray Bridge and the Lower Murray Club. Lloyd would be very pleased to hear from anyone who was a member of the "Blackwood ARC" (which was the forerunner of AHARS). Please contact him direct, he is QTHR in the callbook.

Jobs For The Boys!

Following the positions on Council which were published last month, here is the full list.

Rowland Bruce VK5OU
President & QSL Buro Manager
John McKellar VK5BJM
Secretary, Membership Sec, & Education
Bill Wardrop VK5AWM
Treasurer & Federal Councillor.
Don McDonald VK5ADD
Past President & Minutes Sec.
Hans Van Der Zalm VK5KHZ
DOTC Liaison & SATAC Assistant
Bob Allan VK5BJA
SATAC Co-Ord, Vice Pres, Alt Fed C & Assistant DOTC Liaison
Ian Watson VK5KIA
WICEN Director & Country Clubs' Rep*

(*Country Clubs are also being encouraged to have a representative on Council, for example Darwin have nominated Harry VK5AHH to represent them at forthcoming Meetings.)

Peter Maddern VK5PRM
Programme Co-ordinator (Peter had not re-nominated, but agreed to be co-opted back onto Council)

In April, I mentioned that Nigel Hanwell VK5KAG had joined the Slow Morse Practice Panel. His new Callsign is one that will be very familiar to many, VK5VB. The former holder was the late Vern Blackmore known to one and all as "The Admiral".

Nigel would also like to see a "Buddy" system start in this State. In this way, new or "would-be" amateurs can be given the name of someone near them who would be willing to help them get on air and show them the ropes

etc. If you would like to be part of this, either as a newcomer or a buddy, you can contact Nigel at home on (08) 370 9727. We who have been in the hobby a long time tend to forget just what it is like to be a newcomer trying to find your way — so thanks Nigel for offering to get it going.

Diary Dates

Tues 24th July General Meeting — speaker, Mr Darrian Stringer, Communications Officer with SES (State Emergency Service) 7 45 pm.

Tues 31st July Buy and Sell night 7.30 pm.

Silent Keys

It was indeed a sad week back in May, when we mourned the passing of two comparitively young OMs, Russell Smith VK5KAK and Brian Warman VK5BI. Russell had been a regular attender of Clubs' Conventions, representing the South Coast ARC, having been a former President. A quiet, unassuming but always friendly man who will be sadly missed. Brian, on the other hand, (who, incidentally, was the son-in-law of Vern, the late VK5VB) I had never met, but he had a special sentimental place in this household. he was the first holder of VK5ZBI, Mike (my OM, now VK5AMW) was the second and I was the third. I vividly remember the first time I worked Brian, shortly after I became VK5ZBI; I'm not sure who was the most pleased that I'd got it! Incidentally, the fourth and current holder, Ian Bedson, is also a family friend so the sentimental attachment continues. **ar**

QRM FROM VK7

JOHN ROGERS VK7JK

The 1990 World Rowing Championships at Lake Barrington in NW Tasmania, offer a great new opportunity for amateur radio to achieve international publicity. A successful exercise in providing communications for competitors and visitors at the World Rowing Championships would bring further recognition of the useful and effective role amateur radio can play in such special events and situations. With world conferences about to be held which will affect the future of amateur radio, the importance of such an opportunity as this must be clear to all

There will be more than a thousand top international sportsmen and women competing in the six days of championship events, between 28th October and 4th November 1990, and the proposal is to man a

SPECIAL EVENTS STATION

with a special callsign VK7WRC

It is expected that the operation should take the form of a State WICEN exercise, and VK3 WICEN have been approached for support, perhaps resulting in an Australia-wide WICEN exercise. Other States are being notified.

DoTC approval has been sought and, from verbal contacts already made, it appears there should be very few, if any, problems.

VK7WRC should utilise VHF and UHF links from the rowing site to the main station, which, in turn, should be in a position to permit contact with interstate Australian and DX stations.

Repeater 6, Snow Hill, will be monitored at 09.30Z every Monday and Wednesday nights for reception of constructive ideas and suggestions, by Ted, VK7EB, the VK7 Divisional Secretary and WICEN co-ordinator. **ar**

CLUB CORNER

Radio Amateur Old Timers Club

Members are reminded that the Winter QSO Parties with the ZL OTC will be held next month as follows:-

1. Monday 6th August, 80 metres, 0800Z to 1100Z (the evening of the monthly broadcast).
2. Monday 13th August, 40 metres, 0800Z to 1100Z.

Frequencies, contest exchanges and log forwarding details are as shown in OTN Magazine 1990

Numbers were down in the March Party, 18 VKs and 12 ZLs took part. Logs were received from

	QSO	Area	Mode	Score
VK3JA	25	9	CW/SSB	1125
VK3KF	23	7	"	805
VK3AMD	18	7	"	630
VK3LC	18	7	"	630
VK3KS	20	6	"	600
VK3XB	20	6	"	600
VK3XF	15	6	"	450
VK2KA	14	6	SSB	420
VK3ZC	13	6	CW	390
VK7BJ	10	6	SSB	300
VK2AKE	10	5	CW	250
VK5RK	Check			

We are sad to report the death in early May of Dan Wilkinson ZL2AB at the age of 88. He was a "grand old man" of New Zealand amateur radio, first licensed in 1923, and one of the founders of these enjoyable QSO parties.

Riverland ARC

The Riverland Amateur Radio Club commenced testing its 2m repeater VK5RLD as from the 5/5/90 operating on 147.925 — 147.325 MHz.

Situated on the Sturt Highway at Berri in the Riverland, the repeater will complete the link for amateurs between Adelaide and the Eastern states via the Riverland.

The Riverland ARC has finally achieved its goal of establishing a repeater in the area, only 12 months after the club was formed.

We thank those who financially supported the project. Hopefully, this new benefit will help recruit others to the amateur ranks.

By the time the AR is posted to you VK5RLD should be fully operational.

On the 29th April, several members and their wives from the Riverland ARC enjoyed a social picnic hosted by the Barossa Amateur Radio Club, on the Mt Pleasant Oval. Those who travelled down for the day were Hugh Lloyd VK5BC and his wife Dawn, Mike MacIntosh and Wendy, Kingsley Brauer VK5NOU and Maureen, Doug Tamblyn VK5PDT and Bev, John Ruston (President) VK5ARK and Ivan Smith VK5PAW.

Several events were held during the day These included a transformer throwing competition, which was won by Ivan VK5PAW. In the tug of war, Riverland put up a good fight to win the heat. But age gave way to youth in the final and they were defeated!

Later in the afternoon, a fox hunt was organised. Ivan VK5PAW found his way into a vehicle that was about to pursue the fox, and was rewarded, along with the rest of the crew, by returning home with the prize.

A good day was had by all.

Doug Tamblyn VK5PDT
Secretary Riverland ARC

ar

QSLs FROM THE WIA COLLECTION (23)

KEN MATCHETT VK3TL HON CURATOR WIA QSL COLLECTION
PO BOX 1 SEVILLE VIC 3139

The Olympic Games

and amateur radio (Part 1)

There would be few sporting events in the world to rival the position of the Olympic Games as the ultimate goal of those blessed with physical prowess. And yet, with such world-wide publicity (mainly through the advent of satellite TV communication), it is difficult for us to realise that at one stage in the history of the Games there was thought of abandoning the "Olympic Ideal" altogether. Readers will realise of course, that the modern Olympic Games are a revival of those contested in ancient Greece. This was a festival of sport, the first recorded Games being held in the year 776BC, nearly three thousand years ago. The site was Olympia, a plain lying about 200 or so kilometres west of Athens, on the Peloponnesos peninsula. The festival was held every four years and, although this tradition has been maintained, the Games themselves were very different from those of today. Foot racing seems to have been the number one sport in the Games, but this was later extended to include competition in wrestling, long-jumping, discus, javelin and even chariot racing. The Games came to a sudden end in the year 394AD after being banned by the Roman conquerors.

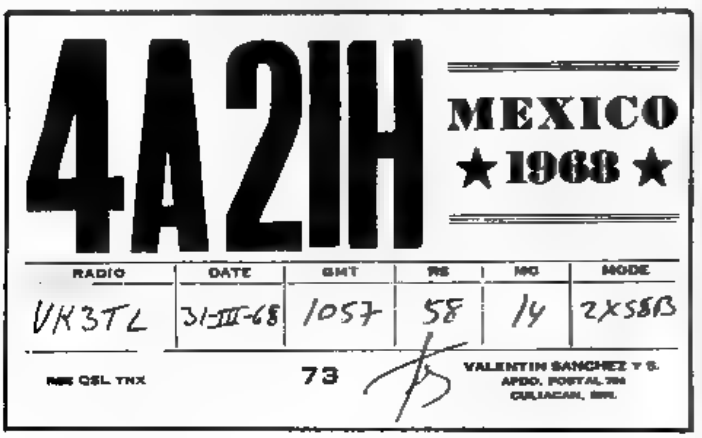
The modern Olympic (Summer) Games owe their existence to one man, Baron Pierre de Coubertin, a French aristocrat, scholar and educator. Much influenced by the character-building quality of English Public schools, de Coubertin felt that amateur participation in sport would be instrumental in building character in young men, in addition to engendering international understanding through friendly competition. Thus, in 1892 he proposed, in Paris, that the ancient Olympic Games be revived. An international conference was held two years later, at which 12 nations agreed that the first modern Olympics should be held in 1896. It was appropriate that the host for these Games be Greece and that the Games be held in Athens. It is significant that today's governing body for the conduct of the Games, the International Olympic Committee (IOC) was established in those early days. Pierre de Coubertin became its first president in 1896, and remained so until 1925. (He stepped down from the position temporarily in 1914 to go off to war). The first Modern Olympic Games in Athens was a very small affair, judged by modern standards. Only 10 sports were contested (cycling, gymnastics, tennis, swimming, fencing, weightlifting, rowing, wrestling, shooting and, of course, athletics) and only 12 nations participated. The next two Modern Games (held in Paris and St Louis) proved a disaster, due mainly to particularly poor organisation and a certain amount of disinterest. The future of the Modern Games at that time lay in the balance.

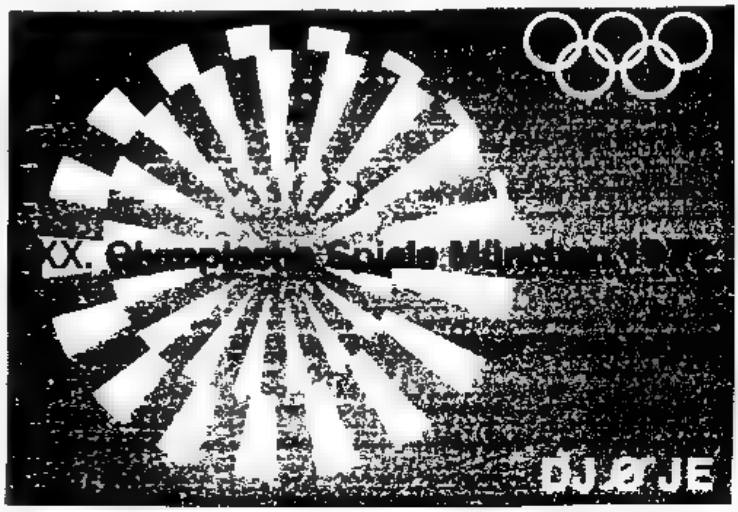
From very simple beginnings, the Games have grown into an organisation of gargantuan proportions — literally millions of dollars being invested in every olympiad. Women now compete on an equal footing with men, but it will be remembered that it is only in comparatively recent years that the fair sex has been permitted to compete in long-distance events. There were no female competitors in the first Modern Olympics, it being against de Coubertin's principles to allow women to either compete or to become involved in the organisation of the Modern Games. He was principally concerned with the healthy upbringing of young men. His Olympic motto of "Citius, altius, fortius" (swifter, higher, stronger) suggests to us the attainment of physical excellence, a characteristic not to be associated in any way with the young ladies of his day!

Because of its ability to communicate throughout the world, it is not surprising that amateur radio has been given the task of bringing attention to a nation's good fortune in holding the Games, and to act as an important advertising medium. Even as far back as 1932, when Los Angeles hosted the Games, the especially allocated callsign W6USA was used for the Olympic Games station. These were the Games in which the great Eddie Tolan sprinted his way into the record book. It is interesting, too, that the Games were conducted during the Great Depression and in the middle of the Prohibition Era, which fact however, did not prevent the Italian contingent from being supplied with wine, which the team members had claimed was essential to their diet!!! It was the first time in which a photo-finish camera was used to assist the judges, and the first time, too, an Olympic Village was set up for participating athletes.

4A2IH

In 1968 Mexico hosted the Olympic Games in its capital, Mexico City. This was probably the first time that a commemorative prefix had been used to draw attention to the Games. Mexican amateurs were permitted to use the prefixes 4A1 (Central Mexico), 4A2 (Northern Mexico) and 4A3 (Yucatan) appropriate to their call area. This was in accordance with the ITU prefix block allocation 4AA-4CZ. On several QSL cards of that year we read "We offer and wish friendship from all the people in the world — Mexico 1968". The special calls commenced in March and continued until December of that year. These were the Games in which there was considerable controversy over the performance of athletes at high altitudes. Mexico City lies 2240 metres (approx 7000 ft) above sea level. Athletes such as the Kenyans who had trained at such altitude were naturally at an advantage and the results bore this out. Australia's Ron Clarke is said to have needed oxygen after having completed the 10,000 metres (in which he finished sixth). These Games saw evidence of the "Black Power" movement which led to the





eventual suspension of two American Negro competitors who had given the clenched fist salute on the victory dais. It was at Mexico City too, that sex tests for women were first introduced in a Summer Olympics. The 4A2IH QSL was sent to the writer and is dated March, 1968.

DJ0JE

The 12th Summer Olympiad was held in West Germany in September 1972. On the front of the DJ0JE QSL we read (from the German) "20th Olympic Games Munich, 1972" These Olympics will always be remembered for one of the most tragic events in the history of the Games. Eight Palestinians broke into the Olympic Village and killed two of the Israeli team in their dormitory. A further nine were killed when the terrorists tried to escape the country. The IOC declared a day of mourning but the Games went on. Possibly the best remembered performance at these Games was that of the American swimming champion, Mark Spitz, who won a record seven gold medals. The best Australian performance was that of the 15-year-old Shane Gould.

The DJ0JE QSL, dated October, 1972, was the result of a QSO with Gil Moody, one of our top DX men, who became a 'Silent Key' in March 1988. It was one of many QSLs kindly donated by his widow, Joan.

XJ3GCO

Mexico's 4A series of callsigns was the precursor of a veritable flood of especially allocated prefixes. Canada used the prefix XJ in commemoration of the XXI Olympic Games held at Montreal in 1976. Prefixes XJ1 through to XJ8 were used by Canadian amateurs, depending upon the province in which they held their licence. These Olympic Games unfortunately suffered a boycott by African nations, caused by the refusal of New Zealand to interfere with plans for a rugby tour by a team from South Africa. There was also a most disappointing Games result from Australia, it being the first time in 40 years that Australia had failed to gain a single gold medal. (We did get a silver for the hockey). If nothing else, the Games drew the attention of Government to the need for future financial support in the field of sports training.

Next month, "The Olympic Games and Amateur Radio" Part 2.

If you would like to play a part in building up the WIA QSL collection and to save something for the future, would you please send a half-dozen (more if you can spare them) QSLs which you feel would really help the collection along.

All cards are appreciated but we especially need commemorative QSLs, special event station QSLs, especially assigned call QSLs (eg VK4RAN), pre-war QSLs, unusual prefixes, rare DX and pictorial QSLs of not-so-common countries. Could you help? Send to PO Box 1, Seville, 3139 or phone (059) 64 3721 for card pick-up or consignment arrangements for larger quantities of cards.

Thanks

The WIA would like to thank the following for their contribution of QSL cards towards the WIA collection:

(Supplementary List)

Roley VK2GAL (G3VIR)
John VK6BA
Percy VK4CPA (ex VK3PA)
Peter VK3PJB

Also, thanks to the family and friends of the following "silent keys".

(Supplementary List)
Owen Rodgers G2HX
(courtesy of Tom G3XMM)
Bob Cunningham VK3ML
Gil Moody VK4AK (VK3ZR)

SILENT KEYS

DUE TO INCREASING DEMANDS ON SPACE WE REGRET THAT AS FROM JULY WE MUST IMPOSE A 200 WORD LIMIT ON OBITUARIES

We regret to announce the recent passing of:-

Mr Bill Pearce	VK2CW
Mr Fred Adams	VK2ALA
Mr Peter Vernon	VK2BZX
Mr Ken Robertson	VK4KT
Mr CL Lack	VK4ACL
Mr L D Walters	VK4AWL
Mr D W Reed	VK4CDR
Mr B J Warman	VK5BI
Mr Joe Brown	VK7BJ

Bert Billings

We were saddened to learn of the death, in early June, of Bert Billings, the subject of Jim Linton's article "The Last Wireless Anzac" in the April issue.

Bert was reported as being in one of the leading vehicles in the Melbourne Anzac Day March, distributing photocopies of the article.

Kenneth Thomas (Ken) Robertson — VK4KT

Townsville amateurs were shocked by the sudden passing of Ken Robertson VK4KT.

Ken was a member of the Townsville Amateur Radio Club for many years. He always provided a display of Icom equipment at the North Queensland Conventions held in Townsville.

Ken had been a pioneer of VHF in Townsville and during the 1950s and 60s was very active on 6 and 2 metres, using converted wartime equipment. This interest later extended to UHF, with a very well equipped shack. Ken had recently acquired a new computer and the associated packet radio equipment, but this had not been put on air at the time of his death.

He and his wife Judy were the founders of Robco Equipment, a firm specialising in tool supplies, originally in Townsville and later with a branch in Cairns. He was also a dealer for Icom Amateur Radio Equipment.

Ken and Judy recently visited the USA, and intended to visit a major Amateur Radio Convention. Unfortunately, Ken fell while in a motel and broke his hip in three places. He was hospitalised for several weeks, and was only recently able to fly home to Townsville. It is understood that a blood clot formed as a result of the accident, and it was this which took his life.

To Judy and daughters Kerry and Jill, we extend our deepest sympathy.

PETER RENTON VK4PV
PUBLICITY OFFICER, TOWNSVILLE
AMATEUR RADIO CLUB

Bill Pearce VK2CW

It is with regret we advise the passing of Bill Pearce VK2CW of New Lambton Newcastle NSW. Bill passed away Saturday 28th April 1990. He was born on 8th August 1913. Recently he and his wife Jean, celebrated their 50th wedding anniversary.

Licensed as VK2CW on 18th May 1934, he was first Secretary of the Hunter branch of

NSW Division of Wireless Institute of Australia. He retired in 1978 from Telecom. The funeral was held on Wednesday 2nd May 1990 in the Northern Chapel of the Beresfield Crematorium

Sincere sympathy to Jean and family

Rodney C Prout VK2CN
Secretary Hunter Branch Radio Group, Newcastle

Harrison Chapman VK3GU

On 6.2.1990 at the Bairnsdale Hospital, we lost one of our early pioneers of amateur radio. Harrison was first licensed in 1922 as 3JX and received a IARU WAC Certificate in 1931. He became a Member of the Institute of Radio Engineers in 1945 and had a 50 year badge on his Old Timer's Certificate

Harrison was an Industrial Chemist employed by Dunlop, and then the Phosphate Co until World War II. He was a Radio Instructor in the RAAF at Ballarat during the War. Later, he lectured in Chemical Engineering at RMIT and instigated a Course in this subject at Melbourne University. He received a Master's Degree in 1975.

Harrison was ordained as a Minister at St Paul's Cathedral in 1959, and was appointed to Melbourne Church of England Grammar School where he taught Physics and Chemistry and conducted an Amateur Radio Club for students.

Whilst in Melbourne, Harrison was active with the University of the Third Age and, on retiring to Bruthen in 1986, he established the Bairnsdale Campus. As an active lecturer, he also ran a course for prospective radio amateurs.

Harrison was a first class CW operator, which gained him many hundreds of cards from little-known countries. He particularly enjoyed operating from his daughter's property near Bruthen, away from man-made interference. He kept regular skeds with Joe W2TKG and visited him in 1948.

The Rev Chapman was a gentle, kindly man who freely shared his many talents with students and friends through his 80 years. To Harrison's daughter Gay and his many friends, we extend our sincere sympathy

Bob Neal VK3ZAN

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OVER TO YOU

ALL LETTERS FROM MEMBERS WILL BE CONSIDERED FOR PUBLICATION AND MUST BE LESS THAN 200 WORDS.
THE WIA ACCEPTS NO RESPONSIBILITY FOR OPINIONS EXPRESSED BY CORRESPONDENTS.

Intruders And Tigers

Al Rechner says (AR, May 1990), that "...the overall activity on 10 metres is down" And, ".. could part of the reason be all those Asian intruders have so effectively revealed our Intruder Watch for the paper tiger it is?"

The Intruder Watch (Monitoring System) is not a "Paper Tiger".

The job of the Intruder Watch is to Hear and Tell (The Administration). And it does. But the Administration has long been a Paper Tiger.

Over two years ago, I warned that the 10 metre band would be in a mess when the current cycle peaked, but the warning fell on (mostly) deaf ears. Now people are complaining.

Too late.

The sheer weight of numbers of unauthorised stations on 10 metres is proving too much for the authorities of all countries concerned. They are aware of the problem, and "Are trying to do something about it."

One solution, Al says, is to get on the band, and use it.

Fine. Do that, and complain to the Intruder Watch about unauthorised signals. But don't blame the Intruder Watch for the problem. It has been complaining on behalf of amateur operators, and will continue to do so.

Use the band, and good luck!

Bill Martin VK2COP
IARU Region 3 Monitoring System Co-ordinator
33 Somerville Rd,
Hornsby Heights 2077

Sensible And Correct Procedure

As a former professional radio operator and presently a communications instructor in emergency services I must comment on recent letters by Lindsay Lawless (AR April & June 1990).

These contain several statements in disagreement with Standard International Radio Telephone procedure.

1. "Roger" has NOT been replaced by "Romeo" in the majority of communication services.
   "Roger" is a "Proword" and "Romeo" is the NATO phonetic for the letter R. The two are distinctly different.
   The only services using "Romeo" for "Roger" are the Maritime, OTC and coastal radio stations. Lindsay's claim refers only to an obscure handbook used by these services.
   I have never heard his suggested procedure used, particularly "Yes" and "No"
2. Yes is "affirmative" and No is "negative". This is for clarity under difficult conditions.
3. "Standby" is used to a station joining a busy net. Alternatively, "wait" means the operator is busy with traffic.
4. If something is not received clearly the procedure is:- "Say again all after (certain word) and before" (certain word) or:- "word before" (certain word).
   An operator does NOT necessarily have to understand the meaning of a message but MUST copy it correctly and NOT ALTER IT.
5. "Repeat" is NOT used in general service communications because it means, (to artillery) "fire the same salvo again"! "Say again" is obviously preferable!
6. When transmitting "figures" (not called numbers!) the procedure is to say "figures, one, two" etc.
7. The "Q Code" is intended for CW, not phone

WICEN uses Standard International R/T procedure since we MUST speak the same language as the other services we work with, so let's not confuse the issue

Ted Gabriel VK4YG
PO Box 245 Ravenshoe 4872

CW — To Be Or Not To Be

Reference 3 recent items in AR — VK3ANJ, April & June OTY, and VK2EVB June p20 regarding "bar those who won't qualify in CW", "DOTC and the sale of 2HD gear", "censoring book sales" etc.

Nothing said addressed the real issue of declining activity on HF, and CW — it just made the authors feel better

Lindsay, the Editor was right in his comment following your April letter, although he said it as gently as he could, "some who have Limited or Novice calls find that these permit as much activity as they have time to enjoy"

The activities now open to those who are CW illiterate are so interesting that many amateurs have concluded a "Full Call" is irrelevant

To get more people onto HF, and CW, you must win their support — your comments in AR won't achieve that.

Let's open the whole matter to sensible, rational, debate — "Is compulsory CW for AOCP now in the best interests of amateur radio?"

Not everyone enjoys CW — many find it extremely difficult to master, due to a lack of aptitude, not a lack of intelligence, or diligence.

GRAHAM B JACKSON VK3TFN
SPLIT ROCK RD
UPPER BEACONSFIELD 3808

Federal Tapes

It was with a great deal of sadness that I read we will no longer hear the pleasant, clear tones of Ron Fisher VK3OM, and Bill Roper VK3ARZ, on the Sunday morning broadcasts giving us news of Federal activities. Their "Federal Tapes" were to me the highlight of these broadcasts

After reading that, in lieu of the Federal Tapes, "Federal news segments in Divisional broadcasts will be provided to each Division from the Executive Office", I listened with interest on Sunday, 3rd June, to the VK3 broadcast to see how the new arrangement would work out. I was not altogether surprised to hear little if any of Federal matters. So at 11am, I listened to the VK2 broadcast and heard quite a good coverage of Federal matters. The criticism from at least one Division was clearly continuing.

So, from now on, my Sunday morning broadcast will commence at 11am, from VK2, on 7.146 MHz or 10.125 MHz. This way I hope I will be able to keep up with the important matters which concern our hobby — even if those pleasant, clear voices will no longer be heard.

I'm sure I am not alone when I say "thanks" to Ron and Bill for a valuable job well done over so many years. It's a great pity that it had to end this way.

JACK O'SHANNASSY VK3SP
23 MCGOWANS RD DONVALE 3111

Two Letter Listing

In the letter from Dennis VK3DGB in May AR he raises the questions of elitism and discrimination in respect of two letter calls and asks what others think.

I find for everyday use that separation of the two and three letter calls makes use of the Call Book, especially in mid QSO, extremely simple.

Two letter calls are not exclusively the privilege of long term licence holders. I have been licensed for some 6 months having obtained my Novice call (VK3LDT) on 4.12.89 and my upgrade on 27.2.90. In applying for each licence I asked DOTC for a call which related to my name (last 2 letters of my Novice call). However, when upgrading the 2 letter call VK3DT was not available and, as I have had a nick-name of "D" or Big D for many years I enquired about the DD suffix. It was available, I handed over my licence fee and here I am!

I do not believe that separate listings are elitist or discriminatory

Finally, as a "new" amateur and member of WIA I have had no reason to criticise the Institute and firmly believe it is essential for the continued good of amateur radio within Australia.

DEREK THURGOOD VK3DD
PO BOX 234
YARRA GLEN 3775

EMC Advice

Two hints in the EMC Report (pp 33-34, May AR) offer dubious advice:

Hint a): The 470 pF capacitors between the antenna earth and the TV chassis are often put there to provide high voltage electrical isolation and are therefore a safety critical item. Refer to the manufacturer before removing these components. Many TV sets manufactured in the UK have their chassis at half mains voltage and removal of these components represents a lethal hazard. I am not familiar with Australian practice in this matter but would advise caution.

Hint f): Positioning a high-pass filter between an unselective pre-amplifier and the TV tuner will not improve out-of band immunity. The filter should go at the antenna side of any active device because intermodulation products caused by signals out of the TV bands can still fall in-band. The unselective preamplifier should be preceded by a band-defining preamplifier so that all such signals are partly rejected before the active device. This also applies to selective preamplifiers where the front-end filtering is not sufficient to prevent intermodulation. Additional filtering before the preamplifier will further reduce the unwanted signals. The additional noise-figure associated with the filter will usually be a small price to pay for improved dynamic range.

IAN BEEBY VK5ZEM, G8OGJ
50 DORADUS AVE ST AGNES 5097

Field Day Rules

All members of the NCRG were relieved that this year's JMFD rules are becoming fairer for participants in WA.

At last — a chance to compete on a more equal footing with the "lucky" states.

As readers of my story "NCRG JMFD 1989" — May AR will realise WA is like another country when it comes to contest working on 80/40 metres, so removing the incredibly biased repeat contact rule was welcome in VK6.

Are VK3s CGH and VT ("Over To You — May AR) guarding their enviable position? — in their "under-populated" contest we made over 1000 contacts! Our operator skills were tried to the limits on all bands, phone and CW.

As for rule changes — it's just part of the challenge of contesting. The JMFD is meant to prepare us for emergency operating conditions — the rules are constantly changing during a disaster!

If the NERG really feels that a rule change which makes the contest fairer to other states is a reason to miss all the fun and fellowship,

then perhaps we are better off without them — but I'll miss reading their mail to check our relative scores!

It seems many amateurs are better "Over To You" letter writers than contesters!

J E Sparkes VK6JX
[redacted]
Donnybrook 6239

Abbreviations

After reading letters from VK4YG and VK2AGL (Feb and May 1990) I thought this may be of interest to you:-

The international aspect of amateur radio having demonstrably become permanent, the ARRL in mid 1924 officially adopted ESPERANTO as its international auxiliary language. This official endorsement was about all the recognition Esperanto ever received. Amateur use of it was negligible. Instead, there sprang up an amateur-made international language understood by all amateurs world wide, commonly termed "QST ENGLISH".

This form of communication is based on the English language, together with a mixture of the international code or "Q" signals and a few relics from the old morse wire-line expressions.

The abbreviation of words to save transmission time and make transmissions understandable by all nations has, of course, long been a habit of all hams "oops" amateurs.

G Taylor VK4OH
Box 526
Pialba 4655

VCR Problem

Many thanks for publishing my letter concerning VCR interference (Feb 90). I subsequently received letters from other Hams detailing their experiences with this same problem. My thanks to Gavin of Tamworth, Laurie VK3DPD, Charlie VK5AOY, Rodney VK3UG and Hans VK2AOU (EMC reporter for AR magazine). Also to Sakari OH2AZG/VK3TJE (AR May p51). All help was very much appreciated.

In short, the results of my attempts to cure the problem were as follows;

1. VCR antenna removed and antenna input socket shorted. No reduction in interference during playback.

2. All forms of mains lead filters, as described by many of my correspondents, tried but to no avail.

3. Entire VCR wrapped in aluminium-foil. All interference disappeared. Wonderful! But hardly a practical solution. Still, it proved to my satisfaction that the interference was directly radiated into the playback head and not via VCR antenna or power leads, as suggested by some.

Anyway, it seems clear that there is no viable solution apart from improved VCR designs. I use a ground plane antenna, and cause no TVI whatsoever. So, rightly or wrongly, I now look upon the whole matter as a problem for VCR owners and not mine. While obviously one must try to live with one's neighbours, they understand that the problem is not of the amateur's making.

Some neighbours initially complained but after discussion and inviting them to contact the DOTC inspectorate, I have heard nothing more. However, I do not transmit on 80 or 40 on Tuesdays, Thursdays and Saturdays unless there is a contest. The result has been no complaints for the last two months. The neighbours are not aware of these "concessions" of mine, nor do I want them to be. They might assume this action is an admission of guilt, when in reality I am doing them a favour! So, at the moment all is quiet around the VK2COX QTH. Thank you all.

Ray Turner VK2COX
6/276 Bunnerong Road
Hillsdale 2036

Wartime Radar Equipment

I am involved with Bill Babb (VK3AQB) in helping in research for a series of books on RAAF World War II Ground Radar being prepared by Norm Smith and Ed Simmonds of NSW.

At present my main interest is in obtaining details of:-

1. Syllabuses and/or class or practical notes for RAAF Wireless Mechanics, Radar Mechanics and Radar Operators course, eg does anyone have the original instruction sheets for lining up the breadboarded 40 Watt transmitter which is now on display at the Point Cook Air Force Base? — or copies of the Massachusetts Institute of Technology Radiation Laboratories' "Radar Equipment Reference Books"?

2. The types of radar equipment used by the RAAF and manuals or circuit diagrams (or photos) of them.

3. The whereabouts of any actual equipment, eg can anyone locate part or all of an Australian LW/AW Radar Transmitter/Receiver?

This work is also partly tied in with a get-together and display at Bendigo in March 1992 for RAAF Radar Fiftieth Anniversary Celebrations. Bill Babb is restoring H2S and other radar and radio equipment for this function.

If anyone has anything they believe may be of help in these projects would they please get in touch with me?

Neil Trainor VK3IJ
133 Bladin St Laverton 3028
(03) 369 1010

DUNKIRK AND BATTLE OF BRITAIN FIFTIETH ANNIVERSARY

A letter from Ron Churcher VK7RN refers to QSOs he had with special stations GB50DNK and GB50SUN on 10th and 29th May respectively. One commemorates the 50th anniversary of the Dunkirk evacuation (26 May to 4 June 1940) and the other a Thames tugboat (Sun XII) which figured largely in the rescue work.

Involving fleets of volunteers in small craft of all kinds, the Dunkirk evacuation lifted some 338,000 troops from the French coast before those remaining surrendered to the advancing German forces.

Only weeks later the British defences were stretched to their limit in the Battle of Britain, involving the Luftwaffe and the RAF in a "do or die" struggle. This 50th anniversary from 7 to 15 July is being commemorated (among many other activities) by the operation of special station GB50MAN from RAF Manston. Presumably, like the other two stations, they will be active around 14150 kHz at 0745 Z approximately. ar

HF PREDICTIONS

ROGER HARRISON VK2ZTB

For ease of use and to accommodate space restrictions in the magazine, I have provided predictions applicable for three major regions of Australia:

VK EAST. Covers the major part of NSW and Queensland

VK SOUTH.Covers southern-NSW, VK3, VK5 and VK7

VK WEST.Covers the south-west of West Australia.

For each of these regions I have selected six "terminals" to major continental regions of the world, or regions of particular interest, such as Australian Antarctica (VK ANTARCTIC). Predictions for the long path to Europe are included again this month.

From time to time, I will include predictions to cover particular DXpeditions or other activities of special interest. There will be a DXpedition to Trindade during June and July for which I have run special predictions. Comments on bands, times and conditions are appended to the end of this column.

The predictions are calculated using a program known as "FTZ", for IBMs and compatibles, distributed by FT Promotions. If you want to know more about this program, call (02)818-4838.

The charts explained

These charts are different from those you see published elsewhere, and arguably more useful to the amateur fraternity as they give, effectively, the predicted signal/noise ratio for each hour and for selected bands.

The charts are organised in 24 rows, one for each hour UTC (first column on the left). Don't forget to add the appropriate number of hours for your time zone, including daylight saving where it applies. The next column give the MUF (maximum usable frequency) for each hour, followed by the field strength at the MUF, in decibels referred to 1 uV/metre (dBU). The column marked FOT gives the "optimum" frequency - the most reliable frequency for the path.

Then come five columns, one for each of five selected HF bands. The numbers in the column represent predicted field strength at each hour in decibels referred to 1 uV/metre. Here it represents "raw" signal to noise ratio as urban noise levels are typically 1-2 uV/metre, but does not take into account the advantage offered by particular transmission modes. The results are based on a transmitter power of 100 W output (except where noted later), the use of modest 3-element beams or similar, and for "median" conditions. Where the results fall below -40 dB, no output is printed.

Enhanced conditions may improve S/N ratios by 9-15 dB. The use of CW or digital transmission modes show better results than SSB. If you've got 400 W output, you get a 6 dB improvements. Where conditions warrant it, I have include predictions for the bands below 14 MHz, deleting the upper bands.

Trindade DXpedition

As you would expect, 14 MHz via the short path will give you the best opportunity to work this region, except for VK WEST. However, while those running 100 W and a quad or small Yagi will be in there with a chance, signals won't be strong except during enhanced conditions.

For those in the VK EAST region, 20m will open abruptly around 2100 and fade out after 0100 UTC. For CW fans, you might get a chance between 0700 and 0800, too. 15m opens 2200-2400, while 10m opens weakly around 2300.

If you're in the VK SOUTH region, 20m opens abruptly at 2200 and closes an hour later. The higher bands are a washout.

For the VK WEST region, 20m provides three short time windows, but weak signals: 0600-0700, 1900 and 2300-0100 UTC. 15m is a better band with signals stronger than 20m between 0700 and 1000 UTC. On 10m, try between 0800 and 0900.

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1	14.6	-24	10.8	-26	-15	-11	-17	-20
2	14.7	-29	10.6	-32	-17	-14	-16	-22
3	15.1	-30	11.0	-36	-19	-15	-16	-20
4	16.8	-28	11.8	.	-21	-16	-16	-17
5	18.9	-23	13.7	...	-25	-17	-13	-16
6	20.2	-18	14.8	....	-27	-17	-11	-13
7	21.1	-16	15.5	....	-25	-16	-12	-12
8	21.3	-14	15.7	....	-23	-14	-12	-14
9	19.4	-15	14.0	-34	-17	-12	-13	-16
10	17.6	-15	11.4	-26	-14	-12	-15	-21
11	15.6	-15	11.0	-18	-12	-13	-19	-28
12	14.3	-14	10.8	-14	-11	-15	-25	-37
13	13.2	-13	9.9	-11	-12	-19	-31	..
14	13.4	-8	9.3	-8	-14	-21	-39	..
15	13.7	-5	8.8	-6	-16	-28	...	...
16	11.1	-2	8.4	-6	-20	-36	...	...
17	10.7	6	8.2	-5	-23	...	. .	...
18	9.6	7	7.4	-10	-34	...	...	..
19	9.6	8	6.4	-20	...	...	...	...
20	8.4	10	6.5	-30	...	...	...	...
21	11.5	11	8.5	1	-19	-36	. .	...
22	16.0	6	12.1	8	3	-5	-17	-32
23	16.0	-4	13.4	-7	-3	-6	-13	-23
24	15.6	-15	11.9	-19	-13	-11	-16	-36

VK EAST — EUROPE S.P.

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1	15.7	-8	10.6	-29	-18	-10	-8	-9
2	15.1	-5	10.7	-26	-16	-6	-5	-7
3	14.1	-1	10.5	-21	-9	0	-1	-6
4	13.3	3	17.8	3	7	5	1	-6
5	12.3	5	16.7	11	11	7	0	-9
6	20.1	7	15.2	17	12	5	-5	-16
7	17.3	8	13.2	16	7	-1	-15	-29
8	14.9	10	11.1	12	-1	-13	-31	...
9	12.6	11	9.6	5	-12	-29	. .	...
10	10.7	11	7.9	-1	-25	. .	. .	. .
11	9.4	11	6.9	-12	-29	...	...	...
12	8.7	11	6.4	-17	...	...	...	...
13	8.6	8	6.5	-18	..	...	...	..
14	8.6	-10	6.4	-18	-29	...	. .	. .
15	8.7	-21	6.5	-17	-33	...	...	...
16	8.1	-36	6.1	-18	-36	...	. .	...
17	7.5	...	5.7	-30	..	..	. .	..
18	7.0	...	6.0	..	..	...	...	..
19	10.2	...	7.5	-28	-26	-32	..	...
20	14.3	-28	11.0	-28	-17	-17	-22	-38
21	16.9	-18	14.5	-36	-20	-15	-15	-19
22	17.3	-14	17.0	...	-23	-15	-13	-14
23	24.2	-11	18.3	...	-23	-15	-11	-12
24	25.1	-9	18.9	...	-22	-13	-10	-10

VK STH — EUROPE S.P.

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1	15.8	0	11.0	0	-1	-6	0	-28
2	15.8	-11	11.1	-14	-9	-10	-17	-26
3	16.3	-18	11.5	-26	-14	-12	-21	-23
4	18.1	-18	12.5	-26	-18	-11	-32	-17
5	20.6	-16	14.6	.	-32	-15	-39	-13
6	22.3	-14	15.8	....	-29	-16	,	-12
7	23.2	-13	16+0	....	-25	-16	...	-12
8	23.6	-12	16.7	.	-25	-16	...	-13
9	22.2	-16	16.8	.	-23	-16	-39	-16
10	20.5	-14	15.6	-32	-18	-14	-22	-17
11	18.4	-15	14.8	-29	-15	-13	-25	-22
12	16.1	-16	12.7	-21	-14	-15	-18	-30
13	14.1	-15	10.7	-15	-14	-18	-14	...
14	12.5	-14	9.4	-12	-16	-23	-13	...
15	11.2	-9	8.5	-10	-21	-35	-11	...
16	10.5	-4	7.9	-10	-27	..	-13	...
17	10.2	3	7.6	-10	-31	...	-15	...
18	9.9	6	7.5	-11	-35	...	-19	...
19	9.8	8	7.5	-11	-37	...	-15	...
20	9.8	9	6.8	-16	...	..	-23	...
21	8.8	9	6.2	-28	...	...	-22	...
22	8.2	9	6.3	-26	. .	...	-31	...
23	11.1	10	8.6	-9	-28	..	-7	..
24	15.0	8	11.5	11	1	-10	10	...

VK WEST — EUROPE S.P.

UTC	MUF	DBU	FOT	14.2	18 1	21.2	24.9	28.5
1	17.5	-1	11.9	-4	-1	-2	-8	-16
2	16.8	1	11.5	-1	1	-2	-9	-18
3	16.1	3	11.1	3	2	-3	-11	-22
4	15.3	6	10.6	7	3	-6	-14	-26
5	15.6	7	10.7	8	3	-3	-14	-26
6	15.8	8	11.1	9	5	1	-12	-24
7	17.6	6	12.3	8	4	3	-13	-25
8	15.8	-2	11 3	-2	-5	-12	-23	-37
9	12.6	-13	9.4	-21	-13	-18	-32	...
10	10.8	-27	8.0	-35	-17	-23	-36	...
11	9.4	...	6.8	-24	-21	-28	...	..
12	8.7	.	6.4	-40	-29	...	..	. .
13	8.6	...	6.5	. .	..	..	...	...
14	8.6	. .	6.4	...	..	..	...	...
15	8.7	.	6.5	. .	...	...	...	...
16	8.1	...	8.1	. .	..	..	...	...
17	7.5	...	5.7	.	...	. .	..	...
18	7.8		6.0	...	...	...	...	...
19	10.2	...	7.5	.	.	..	..	...
20	14 2	-29	10.9	-29	-17	-15	-19	-25
21	18.7	-15	14.1	-30	-16	-12	-13	-30
22	19.6	-8	13 5	-22	-10	-7	-7	-18
23	19.8	-4	13.0	-11	-4	-3	-6	-12
24	18 1	-2	12.5	-4	-2	-2	-7	-13

VK EAST — EUROPE L.P.

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1	20.1	1	15.3	4	3	-1	-8	-17
2	18.1	-2	14.0	-5	-2	-4	-9	-17
3	17.2	-9	13.2	-16	-8	-9	-13	-30
4	18.6	-13	14 7	-27	-16	-16	-13	-15
5	17.9	-20	14.5	-37	-20	-14	-14	-17
6	17.3	-26	13.5	....	-24	-17	-15	-18
7	16.6	-31	12.8	....	-25	-19	-16	-18
8	15.8	-36	12.6	....	-25	-19	-17	-19
9	15.9	-36	12.6	....	-26	-19	-17	-19
10	16.4	-32	12.2	....	-26	-19	-17	-19
11	14.7	..	10.9	....	-36	-30	-30	-35
12	12.6	....	9.1	....	....	....	....	....
13	10.6	....	7.8	....	....	....	....	....
14	9.4	....	6.9	....	....	....	....	....
15	8.9	....	6.5	....	....	....	....	....
16	8.7	....	6.4	....	....	....	....	....
17	8.6	....	6.4	....	....	....	....	....
18	8.6	....	6.4	....	....	....	....	....
19	8.8	..	6.0	-36	....	....	....	....
20	7.5	...	5.7	-29	....	....	....	....
21	7.8	-33	6.0	-29	-13	....	....	....
22	9.6	-26	7.5	-16	-29	....	....	....
23	12.9	-6	9.9	-7	-18	-25	....	....
24	16.8	0	12.9	2	-2	-8	-15	-32

VK STH — EUROPE L.P.

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1	16.1	-15	11.1	-21	-12	-12	-18	-32
2	15.4	-11	10.9	-16	-9	-11	-12	-26
3	16.8	-8	10.5	-10	-8	-11	-9	-29
4	16.2	-4	10.1	-6	-7	-12	-6	-34
5	16.3	-5	12.3	-5	-6	-11	-5	-33
6	14.7	-4	10.6	-6	-5	-10	-3	-31
7	16.1	-1	11.7	-2	-2	-6	-2	-24
8	18.8	-2	13.0	-4	-2	-6	-9	-22
9	16.8	-7	12.5	-8	-7	-11	-7	-30
10	14.2	-15	10.6	-15	-13	-18	-14	-39
11	12.0	-26	8.9	-19	-17	-22	-18	...
12	10.5	-39	7.6	-21	-30	-25	-20	.
13	9.1	..	6.7	. .	...	...	...	...
14	8.6	..	6.3	...	.	. .	...	...
15	8.5	.	6.2	...	.	..	...	
16	8.4		6.2	...	..	..	..	. .
17	8.3	...	6.2	. .	...	...	..	..
18	7.7	...	5.8	. .	.	..	..	...
19	7.3	...	5.6	.	. .	...	...	...
20	7.6	. .	5.8	...	...	...	...	..
21	9.4	..	6.8	. .	..	..		..
22	12.5	...	9.7	.	-29	-28	-36	...
23	16.4	-24	12.4	-33	-20	-17	-30	-34
24	16.9	-20	11.9	-30	-17	-14	-27	-20

VK WEST — EUROPE L.P.

UTC	MUF	DBU	FOT	14.2	18 1	2. 2	14.9	28.5
1	20.0	7	15.2	7	9	5	8	-33
2	19.7	7	14 8	7	9	5	8	34
3	19 4	8	14.7	9	9	5	9	-35
4	18.9	9	14 3	11	10	5	12	-37
5	18.0	11	13.6	15	11	4	15	-21
6	16.6	16	12 6	21	12	2	20	-29
7	14 9	18	11.3	20	7	-5	18	..
8	13 1	19	9 9	16	1	16	13	.
9	11 5	20	8,7	10	-10	-28	6	..
10	10 2	21	7 7	3	-20	.	-1	. .
11	9.2	22	6,8	-4	-30	.	-8	..
12	8.6	22	6 4	9	38	.	-13	...
13	8,2	22	6 3	-12	.		-17	. .
14	8.0	22	6 0	-14	..	. .	15	.
15	7.8	22	6.0	15	..	.	-20	.
16	7.0	23	5.5	-23	...	.	-29	.
17	6.4	22	4 9	33	...	.	-40	...
18	6.5	22	5,1	-32			-38	..
19	8 7	19	6 5	-8	-35		32	..
20	12.6	12	9 8	8	-6	-20	6	
21	16 3	9	12 6	11	6	-3	10	30
22	18 7	8	14 4	10	9	4	10	-18
23	19.7	8	15.0	8	9	5	9	34
24	20 0	7	15.2	7	9	5	8	-32

VK EAST — STH PACIFIC

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1	23.2	-4	17.6	-18	-6	-4	-6	-33
2	22 9	-5	17 8	-20	-7	-5	-7	-32
3	22 6	-6	17.1	-20	-8	-6	-8	-33
4	22 4	-6	17 0	-19	-7	-5	-8	-33
5	22.1	-5	16 8	-17	-6	-5	-8	-34
6	21 4	-5	16 3	-13	-5	-4	-8	-16
7	20 1	-3	15 4	-7	-2	-4	-11	-20
8	18.5	0	14.0	2	0	-6	-16	-29
9	16 9	4	12 9	9	4	-9	-24	...
10	15.3	6	11 7	9	-4	-17	-37	
11	14 0	7	10.6	6	-11	-27	. .	
12	12.9	8	9 8	2	-18	-37	.	...
13	12 2	8	9 2	-1	-24	...	..	
14	11 5	9	8.8	-5	-31	.	.	
15	10.8	9	8 3	-10	-39	...	..	...
16	10 4	9	7.8	-14	r..			.
17	9.2	8	7 1	-25			. .	. .
18	8 0	8	6 1	. .	..	.		.
19	7.9	8	6.2					.
20	10.9	9	8.2	-10	-38	...	...	.
21	15 9	3	12 4	7	-3	-14	-31	
22	20 4	-1	15 7	-2	3	-2	-10	-19
23	22.7	-2	17.5	-9	-1	-1	-5	-32
24	23 2	-3	17 7	-14	-4	-2	-6	-31

VK EAST — ASIA

UTC	MUF	DBU	FOT	1.8	3 6	7 2	10 1	14.2
1	9.2	-18	7 6	.	. .	-28	-17	-18
2	9 1	-19	7 5			-29	-18	-18
3	8.9	-19	7 3			-28	-18	-19
4	8.7	-18	7 0	.	.	-24	-17	-21
5	8 1	-14	6 6			-16	-16	-28
6	7.9	-7	6 3	.	-10	-6	-15	-36
7	8 1	-4	6 4		-16	-2	-13	-35
8	9.0	-1	7.4	.	-5	4	-6	-26
9	10 8	-9	8.5	..	..	-16	-9	-10
10	12 0	-15	9 3			.	-19	-9
11	10.3	-25	7.9			..	-26	-16
12	9 1	-33	7.0	.	...	...	-27	-16
13	8.6	...	6.5				-40	
14	8 4	...	6 4	.		..	. .	-23
15	8 3	.	6.4	. .	.	...	..	-32
16	8 3		6 4	.			-36	-27
17	7.1	.	6.0			.	-32	-29
18	7.3	-29	5.7	.		-30	-21	-26
19	7 5	-18	5 9		.	.	-20	-34
20	9 3	-1	7.4		-2	8	-5	-23
21	12.4	.	9 9	..	0	13	8	2
22	11 5	-3	9 5		+40	+1	0	-4
23	10.3	-9	8 5			-15	-8	-32
24	9.4	-16	7.8	...	...	-25	-16	-37

VK EAST — TRINDADE IS.

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24 9	28.5
1	24 9	-9	19 4	..	-20	-32	-9	-10
2	24 0	-3	18 6	-31	-13	-8	-7	-9
3	22 9	-2	18 3	-17	-5	-2	-3	-8
4	22.1	2	17.6	-3	3	3	-1	-6
5	21 8	6	17.3	10	10	7	1	-7
6	21 5	8	16 4	19	14	8	-3	-11
7	19 7	8	14 8	19	12	5	-6	-19
8	17 7	9	13 4	17	8	1	-14	-30
9	15 8	10	12 0	15	3	-8	-25	.
10	14 3	11	10 7	11	-3	-17	36	
11	13 0	11	9 8	7	9	25		..
12	12 2	11	9 1	4	-14	-31	.	.
13	11 5	7	8 8	-1	-18	-36	..	.
14	10 9	-4	8 2	-8	21	37		.
15	10 6	-14	8 0	-12	-22	-36	..	.
16	9 5	28	7 2	-16	-25	-37		
17	8 3		6 4	18	25	37	.	
18	8 3		6 4	-32	-37			
19	11 4	37	8 5	22	18	21	32	
20	16 7	22	12 9	33	19	16	18	-28
21	21 5	-15	16.5		-23	15	-13	-15
22	24 3	-12	18 6		-25	-16	12	-12
23	25 0	11	19.1		25	16	11	-11
24	25 2	-10	19 1		-23	-14	-10	11

VK EAST — NTH/CENT AMERICA

UTC	MUF	DBU	FOT	14.2	18.1	21.2	14 9	28 5
1	21.5	-6	16 3	12	-5	-5	-10	-18
2	22.3	-5	16 8	-12	4	-4	-10	-16
3	22.5	-5	17 0	11	-4	-4	-9	15
4	21.8	-4	16 5	-9	-2	3	-7	-16
5	20.5	-2	15.6	-4	-1	-3	-3	-20
6	18 9	1	14 3	4	2	4	4	-26
7	17 2	4	13.0	9	2	-7	8	-36
8	15.6	9	11 8	13	1	-12	11	
9	14 0	10	10.5	9	-6	-21	7	...
10	11 9	12	9.0	3	-17	-36	0	.
11	10.2	13	7.7	+5	-30	..	-9	...
12	9.0	14	6.7	-14	...	.	18	.
13	8.4	14	6.2	-19	...	.	-25	.
14	7.9	14	5 9	-25	...	...	-31	..
15	7.8	14	5 9	-26	...	.	31	.
16	7.8	14	5.9	-26		.	-31	...
17	7.7	14	5.9	-26	...	...	32	.
18	7.1	14	5.4	-34		.	-40	...
19	6.9	9	5.3	-36		..	. .	...
20	7.2	-4	5.5	-31	..	..	36	.
21	9.3	-9	6 9	-16	-35	.	-18	...
22	12 9	-8	10.0	-8	-15	-27	-8	..
23	16.9	-6	13.0	-8	7	-12	-7	-36
24	19.9	-6	15 2	10	-5	-7	-9	-23

VK WEST — STH PACIFIC

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1	24.1	-4	18.3	-20	-7	-4	-5	-8
2	24.6	-5	18.6	-23	-8	-4	-5	-8
3	24.6	-5	18.5	-24	-9	-5	-5	-9
4	24.3	-5	18.3	-23	-8	-5	-5	-9
5	23.9	-5	18.0	-21	-7	-4	-5	-10
6	23.1	-4	17.4	-16	-5	-4	-6	-31
7	21.9	-4	16.4	-10	-3	-3	-4	-35
8	19.9	-1	15.0	-1	1	-3	-11	-22
9	17.5	3	13.2	8	1	-8	-21	-38
10	15.0	4	11.3	7	-7	-21	...	..
11	12.9	5	9.7	0	-20	-39	.	...
12	11.1	5	8.4	-10	-36	...	..	..
13	9.9	6	7.4	-21	...	...	. .	...
14	9.2	7	6.9	-29	...	...	...	...
15	9.0	6	6.7	-31	. .	...	. .	...
16	8 9	6	6.7	-32	...	...	...	...
17	9.0	6	6.8	-31	...	...	...	. .
18	8 3	6	6.3	...	...	. .	...	...
19	7.6	6	5.8	...	...	...	..	...
20	7.8	6	6.0	...	...	...	...	...
21	10.5	7	8.2	-15	...	...	...	...
22	15.0	-7	11.6	-7	-12	-21	-36	...
23	19.6	-6	15.1	-10	-5	-7	-14	-23
24	22.7	-4	17.4	-16	-5	-4	-6	-12

VK STH — ASIA

UTC	MUF	DBU	FOT	14.2	18.1	21.2	14 9	28.5
1	21.4	-4	16.4	-13	-4	-6	-10	-35
2	22.2	-5	16.9	-16	-6	-4	-13	-13
3	22.4	-5	17.0	-18	-7	-5	-15	-15
4	22.2	-6	17.3	-19	-7	-5	-16	-13
5	21.9	-6	16.6	-18	-7	-6	-15	-14
6	21.6	-5	16.4	-16	-6	-5	-14	-15
7	21 2	-5	16 1	-13	-5	-5	-10	-16
8	20.2	-4	15.4	-8	-3	-5	-6	-20
9	18 8	-1	14.3	0	0	-5	0	-27
10	17.0	6	12.9	14	3	-8	12	...
11	15.1	7	11.5	10	-5	-20	8	. .
12	13.6	7	10.2	6	-16	-35	0	...
13	12.0	7	9.1	-4	-29	. .	-8	...
14	10.9	7	8.2	-12	...	...	-17	...
15	10.2	7	7.7	-18	...	...	-24	. .
16	9.9	6	7.5	-23	...	..	-29	...
17	9.5	6	7.2	-27	...	...	-33	. .
18	9.3	6	7.1	-30	.	. .	-36	. .
19	8.4	6	6.4	...	...	...	...	..
20	7.4	5	5 7	.	..	...	...	. .
21	7.5	5	5.8	...	. .	...	.	..
22	10.2	-4	7.6	-20	...	..	-24	...
23	14.7	-6	11.4	-6	-12	-23	-7	..
24	18 9	-5	14.6	-9	-5	-8	-7	-26

VK WEST — ASIA

UTC	MUF	DBU	FOT	1.8	3 6	7.2	10.1	14.2
1	8.3	-13	6.7	...	...	-15	-15	-25
2	8.1	-15	6.5	...	...	-18	-17	-27
3	7.5	-20	6.0	. .	. .	-21	-20	-30
4	7.2	-20	5.7	...	...	-20	-21	-33
5	7.4	-15	5.9	. .	..	-15	-19	-35
6	8.4	-5	6.8	...	-25	-3	-10	-27
7	10.4	-1	8.3	.	-11	6	1	-10
8	13.3	2	10.5	. .	0	13	10	6
9	15.4	-7	12.3	.	...	-33	-12	1
10	13 3	-17	10.5	. .	...	...	-28	-9
11	11.2	-27	8.9	...	...	...	-33	-14
12	9.9	-34	7.8	. .	...	...	-33	-15
13	9.0	..	7.0	...	...	...	-36	-20
14	8.7	.	6.8	...	...	...	-38	-23
15	8.4	...	6.6	...	. .	...	-35	-21
16	8.4	-37	6.5	...	...	...	-27	-17
17	8.2	-34	6.4	...	...	...	-25	-19
18	7.6	-28	6.0	...	...	-31	-22	-25
19	7 4	-13	5 8	...	...	-19	-18	-35
20	7 6	-1	6.0	.	-3	0	-14	-39
21	8.6	0	6.8	...	-2	4	+7	-24
22	8.9	0	7 2	...	-2	5	-5	-23
23	8.6	-3	7.0	..	-16	0	-8	-35
24	8.5	-9	6.9	...	...	-10	-12	-25

VK STH — TRINDADE IS.

UTC	MUF	DBU	FOT	1.8	3 6	7.2	10.1
1	8.4	-3	6.3	...	.	-4	-6
2	7.7	-17	5 9	...	...	-20	-14
3	9.0	-24	6.2	...	.	-30	-18
4	10.8	-19	7.9	...	.		-21
5	15.5	-13	11.9	...	. .	. .	-30
6	16 8	-13	13.0	...	..	.	.
7	20.5	-11	15.5	. .	.	...	.
8	22 9	-15	17 1	...	...	.	
9	21.4	-18	16 0	.	.	. .	.
10	19 5	-21	14.5	...	..	.	
11	17.1	-24	12.8	. .		..	..
12	14 5	-29	10 8	..	..	..	.
13	12.2	-34	9.1	...	.	.	...
14	10 5	-39	7 8	.	..	.	...
15	9.3	...	6.8	...	..	. .	-35
16	8.8	-37	6 4	. .	..	. .	-29
17	8.6	-28	6.5	...	.	. .	-22
18	8.5	-17	6.3	...		-24	-15
19	8.5	-6	6.3	...	..	-7	-8
20	7.9	-2	5.8	..	-29	-2	+7
21	7.5	1	5 7		-14	1	-8
22	7.7	4	5.9	...	-4	5	-5
23	9.0	5	6.7		0	9	2
24	9.1	5	6.8	. .	-4	8	2

VK WEST — TRINDADE IS.

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1	25.3	-8	19.6	-30	-18	-10	-8	-9
2	25.1	-5	18.7	-26	-10	-5	-5	-7
3	24.1	-1	18.5	-11	-1	0	-1	-6
4	23.3	3	17.8	3	7	5	1	-6
5	22.3	5	16.7	13	11	7	0	-9
6	20.3	7	15.2	17	12	5	-5	16
7	17.7	8	13.2	16	7	-1	-15	-29
8	14.9	10	11 1	12	-1	-13	-31	...
9	12 6	11	9.4	5	-12	-29	...	..
10	10.7	11	7.9	3	-25	...	...	...
11	9.4	11	6.9	-12	-30	...	. .	...
12	8.7	11	6.4	-17	...	...	...	...
13	8.6	4	6.5	18	...	...	...	...
14	8.6	10	6.4	-18	-30	...	...	...
15	8.7	-21	6.5	-17	32	...	...	...
16	8.1	-36	6.1	-18	-30	...	...	...
17	7.5	...	5.7	-30	...	...	...	...
18	7.8	...	6.0	...	...	...	...	...
19	10.2	...	7.5	-28	-26	-32	...	...
20	14.3	-28	11.0	-20	-17	-17	-32	30
21	18.9	18	14.5	-38	-20	-15	15	-19
22	22.3	-14	17.0	...	-23	-15	-12	-14
23	24.2	-11	18.3	...	-23	-15	-11	12
24	25.1	-9	18.9	...	-22	-13	-10	-10

VK STH — NTH/CENT AMERICA

UTC	MUF	DBU	FOT	14 2	18 1	21 2	14.9	28 5
1	24.7	-10	18.7	...	-24	-14	...	-9
2	24.0	-8	18.2	...	-20	-11	-37	-7
3	22.8	-5	18.4	-31	-13	-8	-28	-5
4	22.1	-1	17.7	-20	-6	-2	+17	-4
5	21.8	3	17.3	7	2	4	-5	-3
6	21 5	7	17.0	5	9	8	7	-3
7	20.8	10	16.7	14	13	9	14	-7
8	20.0	10	15.2	19	14	7	18	-13
9	17 6	11	13 2	18	10	1	16	-26
10	14 8	12	11.1	14	2	-10	12	.
11	12 5	13	9.4	8	8	24	5	...
12	10 6	14	8.0	0	-21		-3	
13	9 3	8	6.9	-9	-32	.	12	
14	8.7	7	6 4	13	-33	.	-16	. .
15	8 6	-18	6.5	-14	-29	.	16	.
16	8.7	-29	6 5	-14	24	37	-15	.
17	9 9	37	6.7	-14	-20	-30	-14	...
18	8 3	..	6 3	-30	-35		30	.
19	7.7		5.9	..	.		..	..
20	8 0	...	6 2	...		.	.	
21	10 6	..	7.9	...	-35	38	.	.
22	15 0	-28	11 6	33	-17	-14	-29	-22
23	19 7	-18	15.1	..	-22	-15	39	15
24	23 0	-13	17 6	..	25	-15	..	-11

VK WEST — NTH/CENT AMERICA

HAMADS

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● TOWER 13.7m extendable self supporting. Nally tower comps supplied. Will support 6EL YAGI/Quad purchaser to dismantle/remove from site $800. VK3JY (03) 836 3841 QTHR.

● ICOM IC202S 2m transceiver. USB, LSB, CW. Covers 144.0 to 144.4 MHz plus oscar. Inc. mic and manual. Excellent condition. $250. Roger VK3XRS (051) 56 8291.

● ICOM IC 730 HF transceiver, all WARC bands, with remote control mic, CW filter, matching mains power supply PS 15, excellent condition. $900. VK3BX QTHR, (03) 830 4864.

● DRAKE L4B linear amplifier has pair 3500Z tubes, 2kw output, top USA amp, good condition $1950 ono. Ray VK3CDR QTHR (03) 726 9222.

● DECEASED ESTATE. TS830S with manual and three 12BY7A valves and two S2001A (6146) valves, Kenwood digital remote VF0230 with manual, Kenwood MC50 microphone, speaker, $800 the lot. Yaesu FL2100B linear with manual and two spare valves $1,150; Heathkit SB200 linear with manual and one spare valve $900. Heathkit wattmeter and manual $75. Variac 9 amp 200 watts with meter and cabinet $150. Ferris SWR meter $30, audio phase shift network type 2Q4, two at $20 each, 2N250A transistors and mounting micas, four at $1 each; model making drill, sensitive, as a vertical drill press, capacity 5/16, $100. VK3ECO (03) 592 6236.

● DRAKE final valves 6JB6 $50 per pair, 813 valves (new) $100 the pair. PL 177WA RF power beam pentode to 175MHz $45 ea.

● Telonic SM-2000 Sweep/Signal generator with plug-in LH-1 range 0-10 MHz and plug-in model SH-1 range 0-450 MHz. RF output up to 1 volt RMS 0-60 dB attenuator in 1 dB steps. Manual included. $150 ono. Weight approx 25 kg. John VK3ZRV (03) 439 3389 QTHR.

● PHILIPS 828/25A VHF Hi band FM TCVR c/w mic speaker. VGC commercial spec radio $500. SONY

AIR7 scanner 150-2194 kHz, 76-108 MHz, 108-136 MHz, 144-174 kHz. c/w: owners manual. 40 ch, priority, delay +- scan, manual auto squelch $250. 150 mm B&W portable TV hi & lo VHF & all UHF channels, nicad bat pack available, good small light weight performer $90. Bruce Kendall VK3WL (03) 741 7654 a/h.

FOR SALE — QLD

● TH6 Emotator rotator and Hills 16m telescopic tilt over tower $1200 VK4CRO QTHR (07) 390 7762.
● RTTY FAX and CW demodulator (SEQTG) RTTY board in unit. Good working order. $120 Bernie VK4OZ QTHR ph (075) 32 4078.
● TRIO SG402 sig gen 100 kHz — 30 MHz good condition. VK4DY QTHR ph (074) 96 1186.
● SELL valves 572B/T160L new unused $375 the pair. Peter VK4APD QTHR ph (07) 397 3751.
● KENWOOD TS520S excel cond — checked over — $450. VK4LN QTHR Barrie (074) 82 2675.
● HAND transceiver — KENWOOD TR2400. Digital readout, 10 programmable memories, many other features. Includes speaker/mike and base station charger w/mike. Good cond. Manuals. Original cartons. $375 John VK4SZ (QTHR).
● 2M FM solid state transceiver, converted Pye Westminster, 12v 9w, 10 channels (fitted 8 repeater & 2 simplex) built in H/B scanner, ready to go, with manuals and crystals for 2 more channels, $150 offers. 70 cm FM transceiver, DSE explorer, all official mods, plus improved TX audio, ready to go, with manuals $180 offers. Dennis VK4ADY QTHR (075) 65 2226.
● YAESU FRG7700 h'book perf cond quick sale $400 scanner SC7000 $200 ONO QTHR (076) 27 3384 (ah) 27 3323 (bh) Ian VK4NIA.

FOR SALE — SA

● AUSTRALIAN (VOICE) REPEATER map and repeater LIST with place names arranged in state and alphabetical order for easy reference when mobile. Send $2 plus SSAE (9"x4") to Adelaide Hills AR Soc. VK5BAR Box 401 Blackwood SA 5051.
● ARMY tovrs AN/PRC 10/10A $50 ea. Transponder APX6 $50. 4 ch Dick Smith radio control system, 29 MHz, complete, RX84 servos $100. Belcom signal generator $25. TH6DX Thunderbird ant $300. FL2100 B linear $950. Tubes 6146B, 6JS6C, 12BY7A all good cond. Bob VK5RI (088) 93 4001 QTHR.

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● YAESU FL2100B linear amplifier very good condition — one owner since new $600 ono. VK6PM QTHR ph (097) 33 1978.

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WANTED — ACT

● FV102DM digital VFO, FC102 atu, contact Richard VK1UE QTHR.

WANTED — NSW

● Wanted IC IIC90 prescaler used EA frequency meter your spare or where I can obtain VK2IS (066) 52 3376.
● CAN anyone loan catalogue or photocopy details of TELECON coax connectors. Exp reimbursed. Art VK2AS QTHR (02) 416 7784.
● KDK VHF FM TX/VR model FM2025. Maurie VK2SMH (02) 627 1434.
● ROLLER inductor preferably with dial/counter. 3 ceramic 1/4" couplers Jack VK2AZP QTHR (02) 476 4013.
● YAESU FT101E Peter VK2DBI QTHR ph (063) 67 5095.
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WANTED — VIC

● GIANT five pin sockets to suit valve type 3/300, 4/125 etc. Also valves type 6DQ5. New if pos. Bob VK3ZL Merino ph (055) 79 1403.
● ANTENNA rotator controller for Daiwa DR-7500 or DR-7600 condition not important VK3BPN QTHR B/H (03) 580 9518 A/H (03) 551 7346

WANTED — QLD

● URGENTLY require Kenwood D65 in good condition for TS-520S Bernie VK4OZ QTHR ph (075) 32 4078.
● CIRCUIT or manual for IC255A, AVO 16 multimeter sinad meter. VK4DY QTHR ph (074) 96 1186.
● CIRCUIT for Traeger SSB-50 HF transceiver also any conversion details. Experience etc. Will pay copying postage costs. Dough VK4AIZ QTHR (07) 391 5526.
● CIRCUIT and or manual to suit solid state oscilloscope type 400 manufactured by Microcell Electronics Surrey England ex-Telecom will meet all costs VK4APB QTHR.

WANTED — TAS

● CIRCUIT service info for SW receiver SONY ICF 6700L. Manuals or p/copy. Costs etc reimbursed. Tom VK7TL (002) 23 8755.
● HF solid state t'ceiver dead or alive 720A or similar pay to $700 QTHR VK7JG ph (003) 27 2256.

WANTED — NT

FM board and electronic keyer to fit Yaesu FT-ONE transceiver please phone (089) 85 1311 Geoff.

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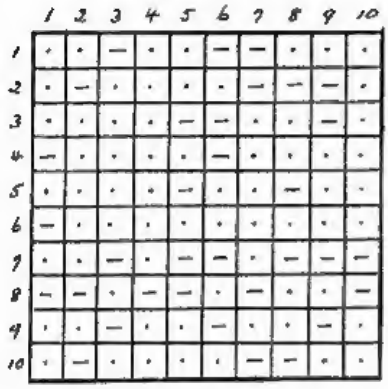

Across: 1 fade 2 lug 3 satin 4 brie 5 safe 6 these 7 ergo 8 Manx 9 fain 10 ripe

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